Appendix A

Notice of Preparation and
Comment Letters

City of Temecula
Community Development
Planning Division

Notice of Preparation

To: **Attached Distribution List**

Subject: **Notice of Preparation of a Draft Subsequent Environmental Impact Report**

Lead Agency:	City of Temecula Planning Department 41000 Main Street Temecula, CA 92590	**Consulting Firm**: Ascent Environmental 1230 Columbia Street, Suite 440 San Diego, CA 92101
Contact:	**Scott Cooper**	**Contact:** Andrew Martin
Phone Number:	(951) 506-5137	**Phone Number:** (619) 417-4218

The City of Temecula (City) Community Development Department, as the Lead Agency pursuant to the California Environmental Quality Act (CEQA), intends to prepare a Draft Subsequent Environmental Impact Report (SEIR) to the previously certified 2006 Temecula Regional Hospital Environmental Impact Report and 2008 Supplemental EIR (SCH# 2005031017). The originally proposed Temecula Regional Hospital Master Plan included development of a hospital complex, medical office buildings, a cancer center, a fitness rehabilitation center, a helipad, and a truck loading area and facilities plant over five phases on a 35.31-acre parcel in the City of Temecula, California. A General Plan Amendment, Zone Change, Development Plan, Conditional Use Permit, and Tentative Parcel Map were required to allow the development of the Temecula Regional Hospital. A 2011 Major Modification and Addendum was prepared to address changes to the originally approved master plan, which include reducing the number of beds in the proposed Phase I hospital, modifying the building facades of the proposed hospital towers, relocating the truck loading bays and service yard, and relocating mechanical equipment. In addition, a conservation easement was approved in 2012 to satisfy off-site mitigation requirements. Construction of Phase I began in June 2011, which included development of the Phase I hospital building, helipad, onsite roadways and access drives, drainage infrastructure, and stormwater quality basins. The hospital began operations in October 2013. A Supplemental EIR was certified in 2014, which allowed for the relocation of the previously approved helipad and development of a storage building.

The project applicant, Universal Health Services, Inc., is proposing the Temecula Valley Hospital Master Plan Update (proposed project), which consists of revisions to the currently adopted master plan. A description of the proposed project, location, and probable environmental effects is contained in the attached materials. A SEIR is needed to address changes to the previously approved master plan that were not discussed in the certified EIR and subsequent environmental documents.

This notice is made pursuant to Section 15082 of the CEQA Guidelines. The City is requesting input from your agency as to the scope and content of the environmental information that is relevant to your agency's statutory responsibilities in connection with the proposed project. Your agency will need to review this SEIR when considering your permit or other approval for the project. Due to the time limits mandated by State law, your response must be sent at the earliest possible date but ***not later than 30 days after receipt of this notice.*** In addition, comments can be submitted at a **Scoping Meeting** that will be held from 6:00 to 8:00 p.m. on Wednesday, March 23, 2022 at the Ronald H. Roberts Temecula Public Library located at 30600 Pauba Road, Temecula, CA 92592.

The Scoping Meeting is **not** a public hearing and no decision on the proposed project will be made at this meeting. This meeting will be an opportunity for agencies and the general public to provide input on the issues that should be addressed in the SEIR.

Please send your written response to **Scott Cooper, Associate Planner,** at the address shown above. We will need the name for a contact person in your agency.

Project Title: Temecula Valley Hospital Master Plan Update (proposed project)

Project Location: The proposed project is located at 31700 Temecula Parkway (project site) in the City of Temecula in the County of Riverside.

Project Description: The proposed project would include a Major Modification to the previously approved Temecula Valley Hospital Master Plan and a Planned Development Overlay (PDO) Amendment. The proposed project would be developed over three phases, consisting of the following primary components:

- Phase II includes development of an approximately 102,000-square-foot, four-story Behavioral Health Building and two visitor parking lots.
- Phase III includes development of an approximately 20,000-square-foot expansion to the emergency department; a 125,000-square-foot, five-story second hospital tower; an 80,000-square-foot medical office building; and a 14,000-square-foot utility plant. In addition, Phase III includes reconfiguration of existing parking lots and development of two new parking lots.
- Phase IV includes development of an approximately 125,000-square-foot, five-story third hospital tower; an 80,000-square-foot, three-story medical office building; and a four-story parking structure. In addition, Phase IV includes relocation of the existing helipad from its interim location west of the existing hospital and visitor parking lots to the roof of the proposed parking structure.

The existing 237,305-square foot hospital building, 5,180-square foot storage building, onsite roadways, drainage infrastructure, and stormwater quality basins that were constructed during Phase I of the previously approved master plan would be maintained in place.

Probable Environmental Effects: In accordance with State CEQA Guidelines Section 15063(a), the City determined that an SEIR would be required for this project. The SEIR will address the following environmental topics in Appendix G of the CEQA Guidelines:

- Aesthetics
- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Noise
- Public Services
- Traffic and Transportation
- Tribal Cultural Resources
- Utilities and Service Systems
- Wildfire

The SEIR will address whether the environmental impacts of the proposed project were adequately examined in the certified EIR and provide further analysis of any environmental topics requiring further analysis.

If you need additional information or have any questions concerning this project, please contact the Project Planner, Scott Cooper at (951) 506-5137 or scott.cooper@TemeculaCA.gov

Luke Watson
Director of Community Development

3/10/2022
Date

INLAND EMPIRE BIKING ALLIANCE

10 April 2022

City of Temecula, Planning Department
Attn: Scott Cooper, Associate Planner II
41000 Main Street
Temecula, CA 92590

Submitted via email to scott.cooper@TemeculaCA.gov.

Re: Temecula Valley Hospital Master Plan Update Notice of Preparation (SCH #2005031017)

Dear Mr. Cooper,

I am writing today on behalf of the Inland Empire Biking Alliance to respond to the Notice of Preparation for the proposed Temecula Valley Hospital Master Plan Update ("Project") which has been proposed to be built there in the city. After reviewing the documents, these are the issues that we want to ensure are studied as part of the process.

The primary concern is for the design of the infrastructure which borders the Project site. It is imperative that as any investments are made in a manner which enhances, not hinders, bicycling to the Project site as well as in the vicinity. It is imperative that the EIR include study of providing the appropriate bikeway based on selection guidelines[1][2] to ensure that what is built is usable by as broad a swath of society as possible.[3] It is also important that these same standards be applied to any offsite alterations which would be required by the Project. In turn, this will ensure that the Project is able to meet Air Quality, GHG, and traffic goals and targets from both the CEQA thresholds of significance as well as those which are set by the City of Temecula and regional agencies.

A related concern is that of bike parking as it is another crucial component that determines whether people are willing to use their bike for commuting to or visiting the Project. As the popularity of electric bikes continues to grow, it underscores the importance of bike parking which is secure as well as includes provisions for charging. This should be studied as part of the EIR process alongside other approaches to reduce VMT.

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[1] Flournoy, M. (2020). Contextual guidance for bike facilities. Caltrans. Retrieved from https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/office-of-smart-mobility-and-climate-change/planning-contextual-guidance-memo-03-11-20-a11y.pdf.

[2] Schultheiss, B., Goodman, D., Blackburn, L., Wood, A., Reed, D., & Elbech, M. (2019). Bikeway selection guide (FHWA-SA-18-077). US Department of Transportation, Federal Highway Administration. Retrieved from https://safety.fhwa.dot.gov/ped_bike/tools_solve/docs/fhwasa18077.pdf.

3 Fitch, D., Handy, S. L, & Carlen, J. (2020). Bike Lanes and Slow Car Speeds Can Improve Bicycling Comfort for Some (But Not All) People. *UC Davis: National Center for Sustainable Transportation*. http://dx.doi.org/10.7922/G24M92TR Retrieved from https://escholarship.org/uc/item/1986q75z

INLAND EMPIRE
BIKING ALLIANCE

Thank you for the opportunity to provide these comments. Please do not hesitate to reach out if there are any questions or concerns.

Sincerely,



Marven E. Norman, Executive Director

About IEBA The Inland Empire Biking Alliance is advocating for making the Inland Empire a better place for people from all rolls of life. From the children just learning how to ride to the mountain bikers to those headed back and forth to work, school, or their preferred shopping center and beyond, we speak up to make sure they all have safe and convenient place to ride.

CARECA

April 6, 2022

Via Email and U.S. Mail

City of Temecula
Attn: Scott Cooper
41000 Main St.
Temecula, CA 92590
scott.cooper@temeculaca.gov

RE: Public Records Act Request and Request for Mailed Notice of Public Hearings and Actions –Temecula Valley Hospital Master Plan Update, Temecula Parkway and Country Glen Wy. Temecula, CA 92592

Dear Mr. Cooper,

CARE CA is writing to request a copy of any and all records related to the project, the Temecula Valley Hospital Master Plan Update, located at Temecula Parkway and Country Glen Way in Temecula. The project will be revisions to the Temecula Regional Hospital EIR from 2006, including a Modification and an Amendment. The entire Master Plan will be constructed in phases: the first of which will include a 237,300 square foot hospital building and a 5,200 square foot storage building (already constructed and in operation); the second of which will be the construction of a 4-story Behavioral Health Building with 102,000 square feet of space; the third of which will be the construction of a 5-story hospital building with 125,000 square feet of space, a medical office building with 80,000 square feet of space, a 20,000 square foot expansion to an existing emergency building, and a 14,000 square foot utility plant; and the fourth of which will be the construction of a 5-story hospital building with 125,000 square feet of space and a 3-story medical office building with 80,000 square feet of space. We are also writing to request copies of all communications and mailed notice of any and all hearings and/or actions related to the Project.

Our request for mailed notice of all hearings includes hearings, study sessions and community meetings related to the Project, certification of the MND (or recirculated DEIR), and approval of any Project entitlements. This request is made pursuant to Public Resources Code Sections 21092.2, 21080.4, 21083.9, 21092, 21108 and 21152 and Government Code Section 65092, which require local agencies to mail such notices to any person who has filed a written request for them with the clerk of the agency's governing body. Our request includes notice to any City actions, hearings or other proceedings regarding the Project, Project approvals and any actions taken, or additional documents released pursuant to the California Environmental Quality Act.

Our request for all records related to the Project is made pursuant to the California Public Records Act. (Government Code § 6250 et seq.) This request is also made pursuant to Article I, section 3(b) of the California Constitution, which provides a constitutional right of access to information concerning the conduct of government. Article I, section 3(b) provides that any statutory right to information shall be broadly construed to provide the greatest access to

government information and further requires that any statute that limits the right of access to information shall be narrowly construed.

We will pay for any direct costs of duplication associated with filling this request up to $200. However, please contact me at (951) 540-1290 with a cost estimate before copying/scanning the materials.

Pursuant to Government Code Section 6253.9, if the requested documents are in electronic format and are 10 MB or less (or can be easily broken into sections of 10 MB or less), please email them to me as attachments.

My contact information is:

U.S. Mail

Jeff Modrzejewski
CARE CA
501 Shatto Place, Suite 200
Los Angeles, CA. 90020

Email
community@careca.org

Please call me if you have any questions. Thank you for your assistance with this matter.

Sincerely,



Jeff Modrzejewski
Executive Director

NATIVE AMERICAN HERITAGE COMMISSION

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NAHC HEADQUARTERS
1550 Harbor Boulevard
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West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

March 15, 2022

Scott Cooper
City of Temecula
41000 Main Street
Temecula, CA 92590

Re: 2005031017, Temecula Valley Hospital Master Plan Update Project, Riverside County

Dear Mr. Cooper:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that a project that may cause a substantial adverse change in the significance of a historical resource, is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, §15064.5 (b) (CEQA Guidelines §15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines §15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code §21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code §21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code §21084.3 (a)). **AB 52 applies to any project for which a notice of preparation, a notice of negative declaration, or a mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements.** If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. §800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments.

Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.

AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:

- **a.** A brief description of the project.
- **b.** The lead agency contact information.
- **c.** Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)).
- **d.** A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1(b)).

- **a.** For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:

- **a.** Alternatives to the project.
- **b.** Recommended mitigation measures.
- **c.** Significant effects. (Pub. Resources Code §21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:

- **a.** Type of environmental review necessary.
- **b.** Significance of the tribal cultural resources.
- **c.** Significance of the project's impacts on tribal cultural resources.
- **d.** If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)).

5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code §6254 (r) and §6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code §21082.3 (c)(1)).

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:

- **a.** Whether the proposed project has a significant impact on an identified tribal cultural resource.
- **b.** Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)).

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:

a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or

b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).

8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)).

9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).

10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:

a. Avoidance and preservation of the resources in place, including, but not limited to:

i. Planning and construction to avoid the resources and protect the cultural and natural context.

ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:

i. Protecting the cultural character and integrity of the resource.

ii. Protecting the traditional use of the resource.

iii. Protecting the confidentiality of the resource.

c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.

d. Protecting the resource. (Pub. Resource Code §21084.3 (b)).

e. Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)).

f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991).

11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:

a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2.

b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.

c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code §65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf.

Some of SB 18's provisions include:

1. Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code §65352.3 (a)(2)).
2. No Statutory Time Limit on SB 18 Tribal Consultation. There is no statutory time limit on SB 18 tribal consultation.
3. Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code §65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code §5097.9 and §5097.993 that are within the city's or county's jurisdiction. (Gov. Code §65352.3 (b)).
4. Conclusion of SB 18 Tribal Consultation: Consultation should be concluded at the point in which:
    a. The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
    b. Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: http://nahc.ca.gov/resources/forms/.

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (http://ohp.parks.ca.gov/?page_id=1068) for an archaeological records search. The records search will determine:
    a. If part or all of the APE has been previously surveyed for cultural resources.
    b. If any known cultural resources have already been recorded on or adjacent to the APE.
    c. If the probability is low, moderate, or high that cultural resources are located in the APE.
    d. If a survey is required to determine whether previously unrecorded cultural resources are present.

2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
    a. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
    b. The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:
   a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.
   b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.
   a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, §15064.5(f) (CEQA Guidelines §15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.
   b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.
   c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code §7050.5, Public Resources Code §5097.98, and Cal. Code Regs., tit. 14, §15064.5, subdivisions (d) and (e) (CEQA Guidelines §15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions or need additional information, please contact me at my email address: Andrew.Green@nahc.ca.gov

Sincerely,

Andrew Green

Andrew Green
Cultural Resources Analyst

cc: State Clearinghouse

P: (626) 381-9248
F: (626) 389-5414
E: info@mitchtsailaw.com

Mitchell M. Tsai
Attorney At Law

139 South Hudson Avenue
Suite 200
Pasadena, California 91101

VIA E-MAIL

March 23, 2022

Scott Cooper
City of Temecula
Planning Department
41000 Main Street
Temecula CA 92590
Em: scott.cooper@TemeculaCA.gov

RE: City of Temecula's Temecula Master Valley Hospital Master Plan SCH#: 2005031017

Dear Mr. Cooper

On behalf of the Southwest Regional Council of Carpenters ("**Southwest Carpenter**" or "**SWRCC**"), my Office is submitting these comments for the City of Temecula's City's March 23, 2022, Scoping Meeting for the Temecula Master Valley Hospital Master Plan Project("**Project**").

The Southwest Carpenters is a labor union representing 50,000 union carpenters in six states, including California, and has a strong interest in well ordered land use planning and addressing the environmental impacts of development projects.

Individual members of the Southwest Carpenters live, work and recreate in the City and surrounding communities and would be directly affected by the Project's environmental impacts.

SWRCC expressly reserves the right to supplement these comments at or prior to hearings on the Project, and at any later hearings and proceedings related to this Project. Cal. Gov. Code § 65009(b); Cal. Pub. Res. Code § 21177(a); *Bakersfield Citizens for Local Control v. Bakersfield* (2004) 124 Cal. App. 4th 1184, 1199-1203; see *Galante Vineyards v. Monterey Water Dist.* (1997) 60 Cal. App. 4th 1109, 1121.

SWRCC incorporates by reference all comments raising issues regarding the EIR submitted prior to certification of the EIR for the Project. *Citizens for Clean Energy v City of Woodland* (2014) 225 Cal. App. 4th 173, 191 (finding that any party who has objected

to the Project's environmental documentation may assert any issue timely raised by other parties).

Moreover, SWRCC requests that the City provide notice for any and all notices referring or related to the Project issued under the California Environmental Quality Act ("**CEQA**"), Cal Public Resources Code ("**PRC**") § 21000 *et seq*, and the California Planning and Zoning Law ("**Planning and Zoning Law**"), Cal. Gov't Code §§ 65000–65010. California Public Resources Code Sections 21092.2, and 21167(f) and Government Code Section 65092 require agencies to mail such notices to any person who has filed a written request for them with the clerk of the agency's governing body.

The City should require the use of a local skilled and trained workforce to benefit the community's economic development and environment. The City should require the use of workers who have graduated from a Joint Labor Management apprenticeship training program approved by the State of California, or have at least as many hours of on-the-job experience in the applicable craft which would be required to graduate from such a state approved apprenticeship training program or who are registered apprentices in an apprenticeship training program approved by the State of California.

Community benefits such as local hire and skilled and trained workforce requirements can also be helpful to reduce environmental impacts and improve the positive economic impact of the Project. Local hire provisions requiring that a certain percentage of workers reside within 10 miles or less of the Project Site can reduce the length of vendor trips, reduce greenhouse gas emissions and providing localized economic benefits. Local hire provisions requiring that a certain percentage of workers reside within 10 miles or less of the Project Site can reduce the length of vendor trips, reduce greenhouse gas emissions and providing localized economic benefits. As environmental consultants Matt Hagemann and Paul E. Rosenfeld note:

> [A]ny local hire requirement that results in a decreased worker trip length from the default value has the potential to result in a reduction of construction-related GHG emissions, though the significance of the reduction would vary based on the location and urbanization level of the project site.

March 8, 2021 SWAPE Letter to Mitchell M. Tsai re Local Hire Requirements and Considerations for Greenhouse Gas Modeling.

Skilled and trained workforce requirements promote the development of skilled trades that yield sustainable economic development. As the California Workforce Development Board and the UC Berkeley Center for Labor Research and Education concluded:

> . . . labor should be considered an investment rather than a cost – and investments in growing, diversifying, and upskilling California's workforce can positively affect returns on climate mitigation efforts. In other words, well trained workers are key to delivering emissions reductions and moving California closer to its climate targets.[1]

Local skilled and trained workforce requirements and policies have significant environmental benefits since they improve an area's jobs-housing balance, decreasing the amount of and length of job commutes and their associated greenhouse gas emissions. Recently, on May 7, 2021, the South Coast Air Quality Management District found that that the "[u]se of a local state-certified apprenticeship program or a skilled and trained workforce with a local hire component" can result in air pollutant reductions.[2]

Cities are increasingly adopting local skilled and trained workforce policies and requirements into general plans and municipal codes. For example, the City of Hayward 2040 General Plan requires the City to "promote local hiring . . . to help achieve a more positive jobs-housing balance, and reduce regional commuting, gas consumption, and greenhouse gas emissions."[3]

In fact, the City of Hayward has gone as far as to adopt a Skilled Labor Force policy into its Downtown Specific Plan and municipal code, requiring developments in its Downtown area to requiring that the City "[c]ontribute to the stabilization of regional construction markets by spurring applicants of housing and nonresidential

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[1] California Workforce Development Board (2020) Putting California on the High Road: A Jobs and Climate Action Plan for 2030 at p. ii, *available at* https://laborcenter.berkeley.edu/wp-content/uploads/2020/09/Putting-California-on-the-High-Road.pdf.

[2] South Coast Air Quality Management District (May 7, 2021) Certify Final Environmental Assessment and Adopt Proposed Rule 2305 – Warehouse Indirect Source Rule – Warehouse Actions and Investments to Reduce Emissions Program, and Proposed Rule 316 – Fees for Rule 2305, Submit Rule 2305 for Inclusion Into the SIP, and Approve Supporting Budget Actions, *available at* http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2021/2021-May7-027.pdf?sfvrsn=10

[3] City of Hayward (2014) Hayward 2040 General Plan Policy Document at p. 3-99, *available at* https://www.hayward-ca.gov/sites/default/files/documents/General_Plan_FINAL.pdf.

developments to require contractors to utilize apprentices from state-approved, joint labor-management training programs, . . ."[4] In addition, the City of Hayward requires all projects 30,000 square feet or larger to "utilize apprentices from state-approved, joint labor-management training programs."[5]

Locating jobs closer to residential areas can have significant environmental benefits. . As the California Planning Roundtable noted in 2008:

> People who live and work in the same jurisdiction would be more likely to take transit, walk, or bicycle to work than residents of less balanced communities and their vehicle trips would be shorter. Benefits would include potential reductions in both vehicle miles traveled and vehicle hours traveled.[6]

In addition, local hire mandates as well as skill training are critical facets of a strategy to reduce vehicle miles traveled. As planning experts Robert Cervero and Michael Duncan noted, simply placing jobs near housing stock is insufficient to achieve VMT reductions since the skill requirements of available local jobs must be matched to those held by local residents.[7] Some municipalities have tied local hire and skilled and trained workforce policies to local development permits to address transportation issues. As Cervero and Duncan note:

> In nearly built-out Berkeley, CA, the approach to balancing jobs and housing is to create local jobs rather than to develop new housing." The city's First Source program encourages businesses to hire local residents, especially for entry- and intermediate-level jobs, and sponsors vocational training to ensure residents are employment-ready. While the program is voluntary, some 300 businesses have used it to date, placing more than 3,000 city residents in local jobs since it was launched in 1986. When

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[4] City of Hayward (2019) Hayward Downtown Specific Plan at p. 5-24, *available at* https://www.hayward-ca.gov/sites/default/files/Hayward%20Downtown%20Specific%20Plan.pdf.

[5] City of Hayward Municipal Code, Chapter 10, § 28.5.3.020(C).

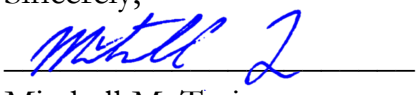
[6] California Planning Roundtable (2008) Deconstructing Jobs-Housing Balance at p. 6, *available at* https://cproundtable.org/static/media/uploads/publications/cpr-jobs-housing.pdf

[7] Cervero, Robert and Duncan, Michael (2006) Which Reduces Vehicle Travel More: Jobs-Housing Balance or Retail-Housing Mixing? Journal of the American Planning Association 72 (4), 475-490, 482, *available at* http://reconnectingamerica.org/assets/Uploads/UTCT-825.pdf.

needed, these carrots are matched by sticks, since the city is not shy about negotiating corporate participation in First Source as a condition of approval for development permits.

The City should consider utilizing skilled and trained workforce policies and requirements to benefit the local area economically and mitigate greenhouse gas, air quality and transportation impacts.

Sincerely,



Mitchell M. Tsai
Attorneys for Southwest Regional
Council of Carpenters

Attached:

March 8, 2021 SWAPE Letter to Mitchell M. Tsai re Local Hire Requirements and Considerations for Greenhouse Gas Modeling (Exhibit A);

Air Quality and GHG Expert Paul Rosenfeld CV (Exhibit B); and

Air Quality and GHG Expert Matt Hagemann CV (Exhibit C).

EXHIBIT A

SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

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March 8, 2021

Mitchell M. Tsai
155 South El Molino, Suite 104
Pasadena, CA 91101

Subject: Local Hire Requirements and Considerations for Greenhouse Gas Modeling

Dear Mr. Tsai,

Soil Water Air Protection Enterprise ("SWAPE") is pleased to provide the following draft technical report explaining the significance of worker trips required for construction of land use development projects with respect to the estimation of greenhouse gas ("GHG") emissions. The report will also discuss the potential for local hire requirements to reduce the length of worker trips, and consequently, reduced or mitigate the potential GHG impacts.

Worker Trips and Greenhouse Gas Calculations

The California Emissions Estimator Model ("CalEEMod") is a "statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and greenhouse gas (GHG) emissions associated with both construction and operations from a variety of land use projects."[1] CalEEMod quantifies construction-related emissions associated with land use projects resulting from off-road construction equipment; on-road mobile equipment associated with workers, vendors, and hauling; fugitive dust associated with grading, demolition, truck loading, and on-road vehicles traveling along paved and unpaved roads; and architectural coating activities; and paving.[2]

The number, length, and vehicle class of worker trips are utilized by CalEEMod to calculate emissions associated with the on-road vehicle trips required to transport workers to and from the Project site during construction.[3]

[1] "California Emissions Estimator Model." CAPCOA, 2017, *available at:* http://www.aqmd.gov/caleemod/home.
[2] "California Emissions Estimator Model." CAPCOA, 2017, *available at:* http://www.aqmd.gov/caleemod/home.
[3] "CalEEMod User's Guide." CAPCOA, November 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, p. 34.

Specifically, the number and length of vehicle trips is utilized to estimate the vehicle miles travelled ("VMT") associated with construction. Then, utilizing vehicle-class specific EMFAC 2014 emission factors, CalEEMod calculates the vehicle exhaust, evaporative, and dust emissions resulting from construction-related VMT, including personal vehicles for worker commuting.[4]

Specifically, in order to calculate VMT, CalEEMod multiplies the average daily trip rate by the average overall trip length (see excerpt below):

> "$VMT_d = \Sigma(\text{Average Daily Trip Rate}_i * \text{Average Overall Trip Length}_i)_n$
>
> Where:
>
> n = Number of land uses being modeled."[5]

Furthermore, to calculate the on-road emissions associated with worker trips, CalEEMod utilizes the following equation (see excerpt below):

> "$\text{Emissions}_{pollutant} = VMT * EF_{running,pollutant}$
>
> Where:
>
> $\text{Emissions}_{pollutant}$ = emissions from vehicle running for each pollutant
>
> VMT = vehicle miles traveled
>
> $EF_{running,pollutant}$ = emission factor for running emissions."[6]

Thus, there is a direct relationship between trip length and VMT, as well as a direct relationship between VMT and vehicle running emissions. In other words, when the trip length is increased, the VMT and vehicle running emissions increase as a result. Thus, vehicle running emissions can be reduced by decreasing the average overall trip length, by way of a local hire requirement or otherwise.

Default Worker Trip Parameters and Potential Local Hire Requirements

As previously discussed, the number, length, and vehicle class of worker trips are utilized by CalEEMod to calculate emissions associated with the on-road vehicle trips required to transport workers to and from the Project site during construction.[7] In order to understand how local hire requirements and associated worker trip length reductions impact GHG emissions calculations, it is important to consider the CalEEMod default worker trip parameters. CalEEMod provides recommended default values based on site-specific information, such as land use type, meteorological data, total lot acreage, project type and typical equipment associated with project type. If more specific project information is known, the user can change the default values and input project-specific values, but the California Environmental Quality Act ("CEQA") requires that such changes be justified by substantial evidence.[8] The default number of construction-related worker trips is calculated by multiplying the

[4] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 14-15.
[5] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 23.
[6] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 15.
[7] "CalEEMod User's Guide." CAPCOA, November 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, p. 34.
[8] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 1, 9.

number of pieces of equipment for all phases by 1.25, with the exception of worker trips required for the building construction and architectural coating phases.[9] Furthermore, the worker trip vehicle class is a 50/25/25 percent mix of light duty autos, light duty truck class 1 and light duty truck class 2, respectively."[10] Finally, the default worker trip length is consistent with the length of the operational home-to-work vehicle trips.[11] The operational home-to-work vehicle trip lengths are:

> "[B]ased on the *location* and *urbanization* selected on the project characteristic screen. These values were *supplied by the air districts or use a default average for the state*. Each district (or county) also assigns trip lengths for urban and rural settings" (emphasis added). [12]

Thus, the default worker trip length is based on the location and urbanization level selected by the User when modeling emissions. The below table shows the CalEEMod default rural and urban worker trip lengths by air basin (see excerpt below and Attachment A).[13]

Worker Trip Length by Air Basin		
Air Basin	**Rural (miles)**	**Urban (miles)**
Great Basin Valleys	16.8	10.8
Lake County	16.8	10.8
Lake Tahoe	16.8	10.8
Mojave Desert	16.8	10.8
Mountain Counties	16.8	10.8
North Central Coast	17.1	12.3
North Coast	16.8	10.8
Northeast Plateau	16.8	10.8
Sacramento Valley	16.8	10.8
Salton Sea	14.6	11
San Diego	16.8	10.8
San Francisco Bay Area	10.8	10.8
San Joaquin Valley	16.8	10.8
South Central Coast	16.8	10.8
South Coast	19.8	14.7
Average	**16.47**	**11.17**
Minimum	**10.80**	**10.80**
Maximum	**19.80**	**14.70**
Range	**9.00**	**3.90**

[9] "CalEEMod User's Guide." CAPCOA, November 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, p. 34.
[10] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 15.
[11] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 14.
[12] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 21.
[13] "Appendix D Default Data Tables." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/05_appendix-d2016-3-2.pdf?sfvrsn=4, p. D-84 – D-86.

As demonstrated above, default rural worker trip lengths for air basins in California vary from 10.8- to 19.8-miles, with an average of 16.47 miles. Furthermore, default urban worker trip lengths vary from 10.8- to 14.7-miles, with an average of 11.17 miles. Thus, while default worker trip lengths vary by location, default urban worker trip lengths tend to be shorter in length. Based on these trends evident in the CalEEMod default worker trip lengths, we can reasonably assume that the efficacy of a local hire requirement is especially dependent upon the urbanization of the project site, as well as the project location.

Practical Application of a Local Hire Requirement and Associated Impact

To provide an example of the potential impact of a local hire provision on construction-related GHG emissions, we estimated the significance of a local hire provision for the Village South Specific Plan ("Project") located in the City of Claremont ("City"). The Project proposed to construct 1,000 residential units, 100,000-SF of retail space, 45,000-SF of office space, as well as a 50-room hotel, on the 24-acre site. The Project location is classified as Urban and lies within the Los Angeles-South Coast County. As a result, the Project has a default worker trip length of 14.7 miles.[14] In an effort to evaluate the potential for a local hire provision to reduce the Project's construction-related GHG emissions, we prepared an updated model, reducing all worker trip lengths to 10 miles (see Attachment B). Our analysis estimates that if a local hire provision with a 10-mile radius were to be implemented, the GHG emissions associated with Project construction would decrease by approximately 17% (see table below and Attachment C).

Local Hire Provision Net Change	
Without Local Hire Provision	
Total Construction GHG Emissions (MT CO_2e)	3,623
Amortized Construction GHG Emissions (MT CO_2e/year)	120.77
With Local Hire Provision	
Total Construction GHG Emissions (MT CO2e)	3,024
Amortized Construction GHG Emissions (MT CO_2e/year)	100.80
% Decrease in Construction-related GHG Emissions	***17%***

As demonstrated above, by implementing a local hire provision requiring 10 mile worker trip lengths, the Project could reduce potential GHG emissions associated with construction worker trips. More broadly, any local hire requirement that results in a decreased worker trip length from the default value has the potential to result in a reduction of construction-related GHG emissions, though the significance of the reduction would vary based on the location and urbanization level of the project site.

This serves as an example of the potential impacts of local hire requirements on estimated project-level GHG emissions, though it does not indicate that local hire requirements would result in reduced construction-related GHG emission for all projects. As previously described, the significance of a local hire requirement depends on the worker trip length enforced and the default worker trip length for the project's urbanization level and location.

[14] "Appendix D Default Data Tables." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/05_appendix-d2016-3-2.pdf?sfvrsn=4, p. D-85.

Disclaimer

SWAPE has received limited discovery. Additional information may become available in the future; thus, we retain the right to revise or amend this report when additional information becomes available. Our professional services have been performed using that degree of care and skill ordinarily exercised, under similar circumstances, by reputable environmental consultants practicing in this or similar localities at the time of service. No other warranty, expressed or implied, is made as to the scope of work, work methodologies and protocols, site conditions, analytical testing results, and findings presented. This report reflects efforts which were limited to information that was reasonably accessible at the time of the work, and may contain informational gaps, inconsistencies, or otherwise be incomplete due to the unavailability or uncertainty of information obtained or provided by third parties.

Sincerely,



Matt Hagemann, P.G., C.Hg.



Paul E. Rosenfeld, Ph.D.

Location Type	Location Name	Rural H-W (miles)	Urban H-W (miles)
Air Basin	Great Basin	16.8	10.8
Air Basin	Lake County	16.8	10.8
Air Basin	Lake Tahoe	16.8	10.8
Air Basin	Mojave Desert	16.8	10.8
Air Basin	Mountain	16.8	10.8
Air Basin	North Central	17.1	12.3
Air Basin	North Coast	16.8	10.8
Air Basin	Northeast	16.8	10.8
Air Basin	Sacramento	16.8	10.8
Air Basin	Salton Sea	14.6	11
Air Basin	San Diego	16.8	10.8
Air Basin	San Francisco	10.8	10.8
Air Basin	San Joaquin	16.8	10.8
Air Basin	South Central	16.8	10.8
Air Basin	South Coast	19.8	14.7
Air District	Amador County	16.8	10.8
Air District	Antelope Valley	16.8	10.8
Air District	Bay Area AQMD	10.8	10.8
Air District	Butte County	12.54	12.54
Air District	Calaveras	16.8	10.8
Air District	Colusa County	16.8	10.8
Air District	El Dorado	16.8	10.8
Air District	Feather River	16.8	10.8
Air District	Glenn County	16.8	10.8
Air District	Great Basin	16.8	10.8
Air District	Imperial County	10.2	7.3
Air District	Kern County	16.8	10.8
Air District	Lake County	16.8	10.8
Air District	Lassen County	16.8	10.8
Air District	Mariposa	16.8	10.8
Air District	Mendocino	16.8	10.8
Air District	Modoc County	16.8	10.8
Air District	Mojave Desert	16.8	10.8
Air District	Monterey Bay	16.8	10.8
Air District	North Coast	16.8	10.8
Air District	Northern Sierra	16.8	10.8
Air District	Northern	16.8	10.8
Air District	Placer County	16.8	10.8
Air District	Sacramento	15	10

Air District	San Diego	16.8	10.8
Air District	San Joaquin	16.8	10.8
Air District	San Luis Obispo	13	13
Air District	Santa Barbara	8.3	8.3
Air District	Shasta County	16.8	10.8
Air District	Siskiyou County	16.8	10.8
Air District	South Coast	19.8	14.7
Air District	Tehama County	16.8	10.8
Air District	Tuolumne	16.8	10.8
Air District	Ventura County	16.8	10.8
Air District	Yolo/Solano	15	10
County	Alameda	10.8	10.8
County	Alpine	16.8	10.8
County	Amador	16.8	10.8
County	Butte	12.54	12.54
County	Calaveras	16.8	10.8
County	Colusa	16.8	10.8
County	Contra Costa	10.8	10.8
County	Del Norte	16.8	10.8
County	El Dorado-Lake	16.8	10.8
County	El Dorado-	16.8	10.8
County	Fresno	16.8	10.8
County	Glenn	16.8	10.8
County	Humboldt	16.8	10.8
County	Imperial	10.2	7.3
County	Inyo	16.8	10.8
County	Kern-Mojave	16.8	10.8
County	Kern-San	16.8	10.8
County	Kings	16.8	10.8
County	Lake	16.8	10.8
County	Lassen	16.8	10.8
County	Los Angeles-	16.8	10.8
County	Los Angeles-	19.8	14.7
County	Madera	16.8	10.8
County	Marin	10.8	10.8
County	Mariposa	16.8	10.8
County	Mendocino-	16.8	10.8
County	Mendocino-	16.8	10.8
County	Mendocino-	16.8	10.8
County	Mendocino-	16.8	10.8
County	Merced	16.8	10.8
County	Modoc	16.8	10.8
County	Mono	16.8	10.8
County	Monterey	16.8	10.8
County	Napa	10.8	10.8

County	Nevada	16.8	10.8
County	Orange	19.8	14.7
County	Placer-Lake	16.8	10.8
County	Placer-Mountain	16.8	10.8
County	Placer-	16.8	10.8
County	Plumas	16.8	10.8
County	Riverside-	16.8	10.8
County	Riverside-	19.8	14.7
County	Riverside-Salton	14.6	11
County	Riverside-South	19.8	14.7
County	Sacramento	15	10
County	San Benito	16.8	10.8
County	San Bernardino-	16.8	10.8
County	San Bernardino-	19.8	14.7
County	San Diego	16.8	10.8
County	San Francisco	10.8	10.8
County	San Joaquin	16.8	10.8
County	San Luis Obispo	13	13
County	San Mateo	10.8	10.8
County	Santa Barbara-	8.3	8.3
County	Santa Barbara-	8.3	8.3
County	Santa Clara	10.8	10.8
County	Santa Cruz	16.8	10.8
County	Shasta	16.8	10.8
County	Sierra	16.8	10.8
County	Siskiyou	16.8	10.8
County	Solano-	15	10
County	Solano-San	16.8	10.8
County	Sonoma-North	16.8	10.8
County	Sonoma-San	10.8	10.8
County	Stanislaus	16.8	10.8
County	Sutter	16.8	10.8
County	Tehama	16.8	10.8
County	Trinity	16.8	10.8
County	Tulare	16.8	10.8
County	Tuolumne	16.8	10.8
County	Ventura	16.8	10.8
County	Yolo	15	10
County	Yuba	16.8	10.8
Statewide	Statewide	16.8	10.8

Worker Trip Length by Air Basin		
Air Basin	**Rural (miles)**	**Urban (miles)**
Great Basin Valleys	16.8	10.8
Lake County	16.8	10.8
Lake Tahoe	16.8	10.8
Mojave Desert	16.8	10.8
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North Central Coast	17.1	12.3
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Northeast Plateau	16.8	10.8
Sacramento Valley	16.8	10.8
Salton Sea	14.6	11
San Diego	16.8	10.8
San Francisco Bay Area	10.8	10.8
San Joaquin Valley	16.8	10.8
South Central Coast	16.8	10.8
South Coast	19.8	14.7
Average	**16.47**	**11.17**
Mininum	**10.80**	**10.80**
Maximum	**19.80**	**14.70**
Range	**9.00**	**3.90**

Village South Specific Plan (Proposed)

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	45.00	1000sqft	1.03	45,000.00	0
High Turnover (Sit Down Restaurant)	36.00	1000sqft	0.83	36,000.00	0
Hotel	50.00	Room	1.67	72,600.00	0
Quality Restaurant	8.00	1000sqft	0.18	8,000.00	0
Apartments Low Rise	25.00	Dwelling Unit	1.56	25,000.00	72
Apartments Mid Rise	975.00	Dwelling Unit	25.66	975,000.00	2789
Regional Shopping Center	56.00	1000sqft	1.29	56,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	9			**Operational Year**	2028
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Annual

Project Characteristics - Consistent with the DEIR's model.

Land Use - See SWAPE comment regarding residential and retail land uses.

Construction Phase - See SWAPE comment regarding individual construction phase lengths.

Demolition - Consistent with the DEIR's model. See SWAPE comment regarding demolition.

Vehicle Trips - Saturday trips consistent with the DEIR's model. See SWAPE comment regarding weekday and Sunday trips.

Woodstoves - Woodstoves and wood-burning fireplaces consistent with the DEIR's model. See SWAPE comment regarding gas fireplaces.

Energy Use -

Construction Off-road Equipment Mitigation - See SWAPE comment on construction-related mitigation.

Area Mitigation - See SWAPE comment regarding operational mitigation measures.

Water Mitigation - See SWAPE comment regarding operational mitigation measures.

Table Name	Column Name	Default Value	New Value
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberWood	1.25	0.00
tblFireplaces	NumberWood	48.75	0.00
tblVehicleTrips	ST_TR	7.16	6.17
tblVehicleTrips	ST_TR	6.39	3.87
tblVehicleTrips	ST_TR	2.46	1.39
tblVehicleTrips	ST_TR	158.37	79.82
tblVehicleTrips	ST_TR	8.19	3.75
tblVehicleTrips	ST_TR	94.36	63.99
tblVehicleTrips	ST_TR	49.97	10.74
tblVehicleTrips	SU_TR	6.07	6.16
tblVehicleTrips	SU_TR	5.86	4.18
tblVehicleTrips	SU_TR	1.05	0.69
tblVehicleTrips	SU_TR	131.84	78.27

tblVehicleTrips	SU_TR	5.95	3.20
tblVehicleTrips	SU_TR	72.16	57.65
tblVehicleTrips	SU_TR	25.24	6.39
tblVehicleTrips	WD_TR	6.59	5.83
tblVehicleTrips	WD_TR	6.65	4.13
tblVehicleTrips	WD_TR	11.03	6.41
tblVehicleTrips	WD_TR	127.15	65.80
tblVehicleTrips	WD_TR	8.17	3.84
tblVehicleTrips	WD_TR	89.95	62.64
tblVehicleTrips	WD_TR	42.70	9.43
tblWoodstoves	NumberCatalytic	1.25	0.00
tblWoodstoves	NumberCatalytic	48.75	0.00
tblWoodstoves	NumberNoncatalytic	1.25	0.00
tblWoodstoves	NumberNoncatalytic	48.75	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.1713	1.8242	1.1662	2.4000e-003	0.4169	0.0817	0.4986	0.1795	0.0754	0.2549	0.0000	213.1969	213.1969	0.0601	0.0000	214.6993
2022	0.6904	4.1142	6.1625	0.0189	1.3058	0.1201	1.4259	0.3460	0.1128	0.4588	0.0000	1,721.6826	1,721.6826	0.1294	0.0000	1,724.9187
2023	0.6148	3.3649	5.6747	0.0178	1.1963	0.0996	1.2959	0.3203	0.0935	0.4138	0.0000	1,627.5295	1,627.5295	0.1185	0.0000	1,630.4925
2024	4.1619	0.1335	0.2810	5.9000e-004	0.0325	6.4700e-003	0.0390	8.6300e-003	6.0400e-003	0.0147	0.0000	52.9078	52.9078	8.0200e-003	0.0000	53.1082
Maximum	**4.1619**	**4.1142**	**6.1625**	**0.0189**	**1.3058**	**0.1201**	**1.4259**	**0.3460**	**0.1128**	**0.4588**	**0.0000**	**1,721.6826**	**1,721.6826**	**0.1294**	**0.0000**	**1,724.9187**

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.1713	1.8242	1.1662	2.4000e-003	0.4169	0.0817	0.4986	0.1795	0.0754	0.2549	0.0000	213.1967	213.1967	0.0601	0.0000	214.6991
2022	0.6904	4.1142	6.1625	0.0189	1.3058	0.1201	1.4259	0.3460	0.1128	0.4588	0.0000	1,721.6823	1,721.6823	0.1294	0.0000	1,724.9183
2023	0.6148	3.3648	5.6747	0.0178	1.1963	0.0996	1.2959	0.3203	0.0935	0.4138	0.0000	1,627.5291	1,627.5291	0.1185	0.0000	1,630.4921
2024	4.1619	0.1335	0.2810	5.9000e-004	0.0325	6.4700e-003	0.0390	8.6300e-003	6.0400e-003	0.0147	0.0000	52.9077	52.9077	8.0200e-003	0.0000	53.1082
Maximum	**4.1619**	**4.1142**	**6.1625**	**0.0189**	**1.3058**	**0.1201**	**1.4259**	**0.3460**	**0.1128**	**0.4588**	**0.0000**	**1,721.6823**	**1,721.6823**	**0.1294**	**0.0000**	**1,724.9183**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**9-1-2021**	**11-30-2021**	1.4103	1.4103
2	**12-1-2021**	**2-28-2022**	1.3613	1.3613
3	**3-1-2022**	**5-31-2022**	1.1985	1.1985
4	**6-1-2022**	**8-31-2022**	1.1921	1.1921
5	**9-1-2022**	**11-30-2022**	1.1918	1.1918
6	**12-1-2022**	**2-28-2023**	1.0774	1.0774
7	**3-1-2023**	**5-31-2023**	1.0320	1.0320
8	**6-1-2023**	**8-31-2023**	1.0260	1.0260

9	**9-1-2023**	**11-30-2023**	1.0265	1.0265
10	**12-1-2023**	**2-29-2024**	2.8857	2.8857
11	**3-1-2024**	**5-31-2024**	1.6207	1.6207
		Highest	2.8857	2.8857

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	5.1437	0.2950	10.3804	1.6700e-003		0.0714	0.0714		0.0714	0.0714	0.0000	220.9670	220.9670	0.0201	3.7400e-003	222.5835
Energy	0.1398	1.2312	0.7770	7.6200e-003		0.0966	0.0966		0.0966	0.0966	0.0000	3,896.0732	3,896.0732	0.1303	0.0468	3,913.2833
Mobile	1.5857	7.9962	19.1834	0.0821	7.7979	0.0580	7.8559	2.0895	0.0539	2.1434	0.0000	7,620.4986	7,620.4986	0.3407	0.0000	7,629.0162
Waste						0.0000	0.0000		0.0000	0.0000	207.8079	0.0000	207.8079	12.2811	0.0000	514.8354
Water						0.0000	0.0000		0.0000	0.0000	29.1632	556.6420	585.8052	3.0183	0.0755	683.7567
Total	**6.8692**	**9.5223**	**30.3407**	**0.0914**	**7.7979**	**0.2260**	**8.0240**	**2.0895**	**0.2219**	**2.3114**	**236.9712**	**12,294.1807**	**12,531.1519**	**15.7904**	**0.1260**	**12,963.4751**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	5.1437	0.2950	10.3804	1.6700e-003		0.0714	0.0714		0.0714	0.0714	0.0000	220.9670	220.9670	0.0201	3.7400e-003	222.5835
Energy	0.1398	1.2312	0.7770	7.6200e-003		0.0966	0.0966		0.0966	0.0966	0.0000	3,896.0732	3,896.0732	0.1303	0.0468	3,913.2833
Mobile	1.5857	7.9962	19.1834	0.0821	7.7979	0.0580	7.8559	2.0895	0.0539	2.1434	0.0000	7,620.4986	7,620.4986	0.3407	0.0000	7,629.0162
Waste						0.0000	0.0000		0.0000	0.0000	207.8079	0.0000	207.8079	12.2811	0.0000	514.8354
Water						0.0000	0.0000		0.0000	0.0000	29.1632	556.6420	585.8052	3.0183	0.0755	683.7567
Total	**6.8692**	**9.5223**	**30.3407**	**0.0914**	**7.7979**	**0.2260**	**8.0240**	**2.0895**	**0.2219**	**2.3114**	**236.9712**	**12,294.1807**	**12,531.1519**	**15.7904**	**0.1260**	**12,963.4751**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/1/2021	10/12/2021	5	30	
2	Site Preparation	Site Preparation	10/13/2021	11/9/2021	5	20	
3	Grading	Grading	11/10/2021	1/11/2022	5	45	
4	Building Construction	Building Construction	1/12/2022	12/12/2023	5	500	
5	Paving	Paving	12/13/2023	1/30/2024	5	35	
6	Architectural Coating	Architectural Coating	1/31/2024	3/19/2024	5	35	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 112.5

Acres of Paving: 0

Residential Indoor: 2,025,000; Residential Outdoor: 675,000; Non-Residential Indoor: 326,400; Non-Residential Outdoor: 108,800; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	458.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	801.00	143.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	160.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0496	0.0000	0.0496	7.5100e-003	0.0000	7.5100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0475	0.4716	0.3235	5.8000e-004		0.0233	0.0233		0.0216	0.0216	0.0000	51.0012	51.0012	0.0144	0.0000	51.3601
Total	**0.0475**	**0.4716**	**0.3235**	**5.8000e-004**	**0.0496**	**0.0233**	**0.0729**	**7.5100e-003**	**0.0216**	**0.0291**	**0.0000**	**51.0012**	**51.0012**	**0.0144**	**0.0000**	**51.3601**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.9300e-003	0.0634	0.0148	1.8000e-004	3.9400e-003	1.9000e-004	4.1300e-003	1.0800e-003	1.8000e-004	1.2600e-003	0.0000	17.4566	17.4566	1.2100e-003	0.0000	17.4869
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.7000e-004	7.5000e-004	8.5100e-003	2.0000e-005	2.4700e-003	2.0000e-005	2.4900e-003	6.5000e-004	2.0000e-005	6.7000e-004	0.0000	2.2251	2.2251	7.0000e-005	0.0000	2.2267
Total	**2.9000e-003**	**0.0641**	**0.0233**	**2.0000e-004**	**6.4100e-003**	**2.1000e-004**	**6.6200e-003**	**1.7300e-003**	**2.0000e-004**	**1.9300e-003**	**0.0000**	**19.6816**	**19.6816**	**1.2800e-003**	**0.0000**	**19.7136**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0496	0.0000	0.0496	7.5100e-003	0.0000	7.5100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0475	0.4716	0.3235	5.8000e-004		0.0233	0.0233		0.0216	0.0216	0.0000	51.0011	51.0011	0.0144	0.0000	51.3600
Total	**0.0475**	**0.4716**	**0.3235**	**5.8000e-004**	**0.0496**	**0.0233**	**0.0729**	**7.5100e-003**	**0.0216**	**0.0291**	**0.0000**	**51.0011**	**51.0011**	**0.0144**	**0.0000**	**51.3600**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.9300e-003	0.0634	0.0148	1.8000e-004	3.9400e-003	1.9000e-004	4.1300e-003	1.0800e-003	1.8000e-004	1.2600e-003	0.0000	17.4566	17.4566	1.2100e-003	0.0000	17.4869
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.7000e-004	7.5000e-004	8.5100e-003	2.0000e-005	2.4700e-003	2.0000e-005	2.4900e-003	6.5000e-004	2.0000e-005	6.7000e-004	0.0000	2.2251	2.2251	7.0000e-005	0.0000	2.2267
Total	**2.9000e-003**	**0.0641**	**0.0233**	**2.0000e-004**	**6.4100e-003**	**2.1000e-004**	**6.6200e-003**	**1.7300e-003**	**2.0000e-004**	**1.9300e-003**	**0.0000**	**19.6816**	**19.6816**	**1.2800e-003**	**0.0000**	**19.7136**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1807	0.0000	0.1807	0.0993	0.0000	0.0993	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0389	0.4050	0.2115	3.8000e-004		0.0204	0.0204		0.0188	0.0188	0.0000	33.4357	33.4357	0.0108	0.0000	33.7061
Total	**0.0389**	**0.4050**	**0.2115**	**3.8000e-004**	**0.1807**	**0.0204**	**0.2011**	**0.0993**	**0.0188**	**0.1181**	**0.0000**	**33.4357**	**33.4357**	**0.0108**	**0.0000**	**33.7061**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.7000e-004	6.0000e-004	6.8100e-003	2.0000e-005	1.9700e-003	2.0000e-005	1.9900e-003	5.2000e-004	1.0000e-005	5.4000e-004	0.0000	1.7801	1.7801	5.0000e-005	0.0000	1.7814
Total	**7.7000e-004**	**6.0000e-004**	**6.8100e-003**	**2.0000e-005**	**1.9700e-003**	**2.0000e-005**	**1.9900e-003**	**5.2000e-004**	**1.0000e-005**	**5.4000e-004**	**0.0000**	**1.7801**	**1.7801**	**5.0000e-005**	**0.0000**	**1.7814**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1807	0.0000	0.1807	0.0993	0.0000	0.0993	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0389	0.4050	0.2115	3.8000e-004		0.0204	0.0204		0.0188	0.0188	0.0000	33.4357	33.4357	0.0108	0.0000	33.7060
Total	**0.0389**	**0.4050**	**0.2115**	**3.8000e-004**	**0.1807**	**0.0204**	**0.2011**	**0.0993**	**0.0188**	**0.1181**	**0.0000**	**33.4357**	**33.4357**	**0.0108**	**0.0000**	**33.7060**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.7000e-004	6.0000e-004	6.8100e-003	2.0000e-005	1.9700e-003	2.0000e-005	1.9900e-003	5.2000e-004	1.0000e-005	5.4000e-004	0.0000	1.7801	1.7801	5.0000e-005	0.0000	1.7814
Total	**7.7000e-004**	**6.0000e-004**	**6.8100e-003**	**2.0000e-005**	**1.9700e-003**	**2.0000e-005**	**1.9900e-003**	**5.2000e-004**	**1.0000e-005**	**5.4000e-004**	**0.0000**	**1.7801**	**1.7801**	**5.0000e-005**	**0.0000**	**1.7814**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1741	0.0000	0.1741	0.0693	0.0000	0.0693	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0796	0.8816	0.5867	1.1800e-003		0.0377	0.0377		0.0347	0.0347	0.0000	103.5405	103.5405	0.0335	0.0000	104.3776
Total	**0.0796**	**0.8816**	**0.5867**	**1.1800e-003**	**0.1741**	**0.0377**	**0.2118**	**0.0693**	**0.0347**	**0.1040**	**0.0000**	**103.5405**	**103.5405**	**0.0335**	**0.0000**	**104.3776**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6400e-003	1.2700e-003	0.0144	4.0000e-005	4.1600e-003	3.0000e-005	4.2000e-003	1.1100e-003	3.0000e-005	1.1400e-003	0.0000	3.7579	3.7579	1.1000e-004	0.0000	3.7607
Total	**1.6400e-003**	**1.2700e-003**	**0.0144**	**4.0000e-005**	**4.1600e-003**	**3.0000e-005**	**4.2000e-003**	**1.1100e-003**	**3.0000e-005**	**1.1400e-003**	**0.0000**	**3.7579**	**3.7579**	**1.1000e-004**	**0.0000**	**3.7607**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1741	0.0000	0.1741	0.0693	0.0000	0.0693	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0796	0.8816	0.5867	1.1800e-003		0.0377	0.0377		0.0347	0.0347	0.0000	103.5403	103.5403	0.0335	0.0000	104.3775
Total	**0.0796**	**0.8816**	**0.5867**	**1.1800e-003**	**0.1741**	**0.0377**	**0.2118**	**0.0693**	**0.0347**	**0.1040**	**0.0000**	**103.5403**	**103.5403**	**0.0335**	**0.0000**	**104.3775**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6400e-003	1.2700e-003	0.0144	4.0000e-005	4.1600e-003	3.0000e-005	4.2000e-003	1.1100e-003	3.0000e-005	1.1400e-003	0.0000	3.7579	3.7579	1.1000e-004	0.0000	3.7607
Total	**1.6400e-003**	**1.2700e-003**	**0.0144**	**4.0000e-005**	**4.1600e-003**	**3.0000e-005**	**4.2000e-003**	**1.1100e-003**	**3.0000e-005**	**1.1400e-003**	**0.0000**	**3.7579**	**3.7579**	**1.1000e-004**	**0.0000**	**3.7607**

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0807	0.0000	0.0807	0.0180	0.0000	0.0180	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0127	0.1360	0.1017	2.2000e-004		5.7200e-003	5.7200e-003		5.2600e-003	5.2600e-003	0.0000	19.0871	19.0871	6.1700e-003	0.0000	19.2414
Total	**0.0127**	**0.1360**	**0.1017**	**2.2000e-004**	**0.0807**	**5.7200e-003**	**0.0865**	**0.0180**	**5.2600e-003**	**0.0233**	**0.0000**	**19.0871**	**19.0871**	**6.1700e-003**	**0.0000**	**19.2414**

3.4 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	2.1000e-004	2.4400e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.7000e-004	2.0000e-004	1.0000e-005	2.1000e-004	0.0000	0.6679	0.6679	2.0000e-005	0.0000	0.6684
Total	**2.8000e-004**	**2.1000e-004**	**2.4400e-003**	**1.0000e-005**	**7.7000e-004**	**1.0000e-005**	**7.7000e-004**	**2.0000e-004**	**1.0000e-005**	**2.1000e-004**	**0.0000**	**0.6679**	**0.6679**	**2.0000e-005**	**0.0000**	**0.6684**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0807	0.0000	0.0807	0.0180	0.0000	0.0180	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0127	0.1360	0.1017	2.2000e-004		5.7200e-003	5.7200e-003		5.2600e-003	5.2600e-003	0.0000	19.0871	19.0871	6.1700e-003	0.0000	19.2414
Total	**0.0127**	**0.1360**	**0.1017**	**2.2000e-004**	**0.0807**	**5.7200e-003**	**0.0865**	**0.0180**	**5.2600e-003**	**0.0233**	**0.0000**	**19.0871**	**19.0871**	**6.1700e-003**	**0.0000**	**19.2414**

3.4 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	2.1000e-004	2.4400e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.7000e-004	2.0000e-004	1.0000e-005	2.1000e-004	0.0000	0.6679	0.6679	2.0000e-005	0.0000	0.6684
Total	**2.8000e-004**	**2.1000e-004**	**2.4400e-003**	**1.0000e-005**	**7.7000e-004**	**1.0000e-005**	**7.7000e-004**	**2.0000e-004**	**1.0000e-005**	**2.1000e-004**	**0.0000**	**0.6679**	**0.6679**	**2.0000e-005**	**0.0000**	**0.6684**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2158	1.9754	2.0700	3.4100e-003		0.1023	0.1023		0.0963	0.0963	0.0000	293.1324	293.1324	0.0702	0.0000	294.8881
Total	**0.2158**	**1.9754**	**2.0700**	**3.4100e-003**		**0.1023**	**0.1023**		**0.0963**	**0.0963**	**0.0000**	**293.1324**	**293.1324**	**0.0702**	**0.0000**	**294.8881**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0527	1.6961	0.4580	4.5500e-003	0.1140	3.1800e-003	0.1171	0.0329	3.0400e-003	0.0359	0.0000	441.9835	441.9835	0.0264	0.0000	442.6435
Worker	0.4088	0.3066	3.5305	0.0107	1.1103	8.8700e-003	1.1192	0.2949	8.1700e-003	0.3031	0.0000	966.8117	966.8117	0.0266	0.0000	967.4773
Total	**0.4616**	**2.0027**	**3.9885**	**0.0152**	**1.2243**	**0.0121**	**1.2363**	**0.3278**	**0.0112**	**0.3390**	**0.0000**	**1,408.7952**	**1,408.7952**	**0.0530**	**0.0000**	**1,410.1208**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2158	1.9754	2.0700	3.4100e-003		0.1023	0.1023		0.0963	0.0963	0.0000	293.1321	293.1321	0.0702	0.0000	294.8877
Total	**0.2158**	**1.9754**	**2.0700**	**3.4100e-003**		**0.1023**	**0.1023**		**0.0963**	**0.0963**	**0.0000**	**293.1321**	**293.1321**	**0.0702**	**0.0000**	**294.8877**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0527	1.6961	0.4580	4.5500e-003	0.1140	3.1800e-003	0.1171	0.0329	3.0400e-003	0.0359	0.0000	441.9835	441.9835	0.0264	0.0000	442.6435
Worker	0.4088	0.3066	3.5305	0.0107	1.1103	8.8700e-003	1.1192	0.2949	8.1700e-003	0.3031	0.0000	966.8117	966.8117	0.0266	0.0000	967.4773
Total	**0.4616**	**2.0027**	**3.9885**	**0.0152**	**1.2243**	**0.0121**	**1.2363**	**0.3278**	**0.0112**	**0.3390**	**0.0000**	**1,408.7952**	**1,408.7952**	**0.0530**	**0.0000**	**1,410.1208**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1942	1.7765	2.0061	3.3300e-003		0.0864	0.0864		0.0813	0.0813	0.0000	286.2789	286.2789	0.0681	0.0000	287.9814
Total	**0.1942**	**1.7765**	**2.0061**	**3.3300e-003**		**0.0864**	**0.0864**		**0.0813**	**0.0813**	**0.0000**	**286.2789**	**286.2789**	**0.0681**	**0.0000**	**287.9814**

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0382	1.2511	0.4011	4.3000e-003	0.1113	1.4600e-003	0.1127	0.0321	1.4000e-003	0.0335	0.0000	417.9930	417.9930	0.0228	0.0000	418.5624
Worker	0.3753	0.2708	3.1696	0.0101	1.0840	8.4100e-003	1.0924	0.2879	7.7400e-003	0.2957	0.0000	909.3439	909.3439	0.0234	0.0000	909.9291
Total	**0.4135**	**1.5218**	**3.5707**	**0.0144**	**1.1953**	**9.8700e-003**	**1.2051**	**0.3200**	**9.1400e-003**	**0.3292**	**0.0000**	**1,327.3369**	**1,327.3369**	**0.0462**	**0.0000**	**1,328.4916**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1942	1.7765	2.0061	3.3300e-003		0.0864	0.0864		0.0813	0.0813	0.0000	286.2785	286.2785	0.0681	0.0000	287.9811
Total	**0.1942**	**1.7765**	**2.0061**	**3.3300e-003**		**0.0864**	**0.0864**		**0.0813**	**0.0813**	**0.0000**	**286.2785**	**286.2785**	**0.0681**	**0.0000**	**287.9811**

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0382	1.2511	0.4011	4.3000e-003	0.1113	1.4600e-003	0.1127	0.0321	1.4000e-003	0.0335	0.0000	417.9930	417.9930	0.0228	0.0000	418.5624
Worker	0.3753	0.2708	3.1696	0.0101	1.0840	8.4100e-003	1.0924	0.2879	7.7400e-003	0.2957	0.0000	909.3439	909.3439	0.0234	0.0000	909.9291
Total	**0.4135**	**1.5218**	**3.5707**	**0.0144**	**1.1953**	**9.8700e-003**	**1.2051**	**0.3200**	**9.1400e-003**	**0.3292**	**0.0000**	**1,327.3369**	**1,327.3369**	**0.0462**	**0.0000**	**1,328.4916**

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.7100e-003	0.0663	0.0948	1.5000e-004		3.3200e-003	3.3200e-003		3.0500e-003	3.0500e-003	0.0000	13.0175	13.0175	4.2100e-003	0.0000	13.1227
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.7100e-003**	**0.0663**	**0.0948**	**1.5000e-004**		**3.3200e-003**	**3.3200e-003**		**3.0500e-003**	**3.0500e-003**	**0.0000**	**13.0175**	**13.0175**	**4.2100e-003**	**0.0000**	**13.1227**

3.6 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.7000e-004	2.7000e-004	3.1200e-003	1.0000e-005	1.0700e-003	1.0000e-005	1.0800e-003	2.8000e-004	1.0000e-005	2.9000e-004	0.0000	0.8963	0.8963	2.0000e-005	0.0000	0.8968
Total	**3.7000e-004**	**2.7000e-004**	**3.1200e-003**	**1.0000e-005**	**1.0700e-003**	**1.0000e-005**	**1.0800e-003**	**2.8000e-004**	**1.0000e-005**	**2.9000e-004**	**0.0000**	**0.8963**	**0.8963**	**2.0000e-005**	**0.0000**	**0.8968**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.7100e-003	0.0663	0.0948	1.5000e-004		3.3200e-003	3.3200e-003		3.0500e-003	3.0500e-003	0.0000	13.0175	13.0175	4.2100e-003	0.0000	13.1227
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.7100e-003**	**0.0663**	**0.0948**	**1.5000e-004**		**3.3200e-003**	**3.3200e-003**		**3.0500e-003**	**3.0500e-003**	**0.0000**	**13.0175**	**13.0175**	**4.2100e-003**	**0.0000**	**13.1227**

3.6 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.7000e-004	2.7000e-004	3.1200e-003	1.0000e-005	1.0700e-003	1.0000e-005	1.0800e-003	2.8000e-004	1.0000e-005	2.9000e-004	0.0000	0.8963	0.8963	2.0000e-005	0.0000	0.8968
Total	**3.7000e-004**	**2.7000e-004**	**3.1200e-003**	**1.0000e-005**	**1.0700e-003**	**1.0000e-005**	**1.0800e-003**	**2.8000e-004**	**1.0000e-005**	**2.9000e-004**	**0.0000**	**0.8963**	**0.8963**	**2.0000e-005**	**0.0000**	**0.8968**

3.6 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0109	0.1048	0.1609	2.5000e-004		5.1500e-003	5.1500e-003		4.7400e-003	4.7400e-003	0.0000	22.0292	22.0292	7.1200e-003	0.0000	22.2073
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0109**	**0.1048**	**0.1609**	**2.5000e-004**		**5.1500e-003**	**5.1500e-003**		**4.7400e-003**	**4.7400e-003**	**0.0000**	**22.0292**	**22.0292**	**7.1200e-003**	**0.0000**	**22.2073**

3.6 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.9000e-004	4.1000e-004	4.9200e-003	2.0000e-005	1.8100e-003	1.0000e-005	1.8200e-003	4.8000e-004	1.0000e-005	4.9000e-004	0.0000	1.4697	1.4697	4.0000e-005	0.0000	1.4706
Total	**5.9000e-004**	**4.1000e-004**	**4.9200e-003**	**2.0000e-005**	**1.8100e-003**	**1.0000e-005**	**1.8200e-003**	**4.8000e-004**	**1.0000e-005**	**4.9000e-004**	**0.0000**	**1.4697**	**1.4697**	**4.0000e-005**	**0.0000**	**1.4706**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0109	0.1048	0.1609	2.5000e-004		5.1500e-003	5.1500e-003		4.7400e-003	4.7400e-003	0.0000	22.0292	22.0292	7.1200e-003	0.0000	22.2073
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0109**	**0.1048**	**0.1609**	**2.5000e-004**		**5.1500e-003**	**5.1500e-003**		**4.7400e-003**	**4.7400e-003**	**0.0000**	**22.0292**	**22.0292**	**7.1200e-003**	**0.0000**	**22.2073**

3.6 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.9000e-004	4.1000e-004	4.9200e-003	2.0000e-005	1.8100e-003	1.0000e-005	1.8200e-003	4.8000e-004	1.0000e-005	4.9000e-004	0.0000	1.4697	1.4697	4.0000e-005	0.0000	1.4706
Total	**5.9000e-004**	**4.1000e-004**	**4.9200e-003**	**2.0000e-005**	**1.8100e-003**	**1.0000e-005**	**1.8200e-003**	**4.8000e-004**	**1.0000e-005**	**4.9000e-004**	**0.0000**	**1.4697**	**1.4697**	**4.0000e-005**	**0.0000**	**1.4706**

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.1372					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.1600e-003	0.0213	0.0317	5.0000e-005		1.0700e-003	1.0700e-003		1.0700e-003	1.0700e-003	0.0000	4.4682	4.4682	2.5000e-004	0.0000	4.4745
Total	**4.1404**	**0.0213**	**0.0317**	**5.0000e-005**		**1.0700e-003**	**1.0700e-003**		**1.0700e-003**	**1.0700e-003**	**0.0000**	**4.4682**	**4.4682**	**2.5000e-004**	**0.0000**	**4.4745**

3.7 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0101	6.9900e-003	0.0835	2.8000e-004	0.0307	2.3000e-004	0.0309	8.1500e-003	2.2000e-004	8.3700e-003	0.0000	24.9407	24.9407	6.1000e-004	0.0000	24.9558
Total	**0.0101**	**6.9900e-003**	**0.0835**	**2.8000e-004**	**0.0307**	**2.3000e-004**	**0.0309**	**8.1500e-003**	**2.2000e-004**	**8.3700e-003**	**0.0000**	**24.9407**	**24.9407**	**6.1000e-004**	**0.0000**	**24.9558**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.1372					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.1600e-003	0.0213	0.0317	5.0000e-005		1.0700e-003	1.0700e-003		1.0700e-003	1.0700e-003	0.0000	4.4682	4.4682	2.5000e-004	0.0000	4.4745
Total	**4.1404**	**0.0213**	**0.0317**	**5.0000e-005**		**1.0700e-003**	**1.0700e-003**		**1.0700e-003**	**1.0700e-003**	**0.0000**	**4.4682**	**4.4682**	**2.5000e-004**	**0.0000**	**4.4745**

3.7 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0101	6.9900e-003	0.0835	2.8000e-004	0.0307	2.3000e-004	0.0309	8.1500e-003	2.2000e-004	8.3700e-003	0.0000	24.9407	24.9407	6.1000e-004	0.0000	24.9558
Total	**0.0101**	**6.9900e-003**	**0.0835**	**2.8000e-004**	**0.0307**	**2.3000e-004**	**0.0309**	**8.1500e-003**	**2.2000e-004**	**8.3700e-003**	**0.0000**	**24.9407**	**24.9407**	**6.1000e-004**	**0.0000**	**24.9558**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.5857	7.9962	19.1834	0.0821	7.7979	0.0580	7.8559	2.0895	0.0539	2.1434	0.0000	7,620.4986	7,620.4986	0.3407	0.0000	7,629.0162
Unmitigated	1.5857	7.9962	19.1834	0.0821	7.7979	0.0580	7.8559	2.0895	0.0539	2.1434	0.0000	7,620.4986	7,620.4986	0.3407	0.0000	7,629.0162

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	145.75	154.25	154.00	506,227	506,227
Apartments Mid Rise	4,026.75	3,773.25	4075.50	13,660,065	13,660,065
General Office Building	288.45	62.55	31.05	706,812	706,812
High Turnover (Sit Down Restaurant)	2,368.80	2,873.52	2817.72	3,413,937	3,413,937
Hotel	192.00	187.50	160.00	445,703	445,703
Quality Restaurant	501.12	511.92	461.20	707,488	707,488
Regional Shopping Center	528.08	601.44	357.84	1,112,221	1,112,221
Total	8,050.95	8,164.43	8,057.31	20,552,452	20,552,452

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
High Turnover (Sit Down	16.60	8.40	6.90	8.50	72.50	19.00	37	20	43
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4
Quality Restaurant	16.60	8.40	6.90	12.00	69.00	19.00	38	18	44
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Apartments Mid Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
General Office Building	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
High Turnover (Sit Down Restaurant)	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Hotel	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Quality Restaurant	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Regional Shopping Center	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2,512.6465	2,512.6465	0.1037	0.0215	2,521.6356
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2,512.6465	2,512.6465	0.1037	0.0215	2,521.6356
NaturalGas Mitigated	0.1398	1.2312	0.7770	7.6200e-003		0.0966	0.0966		0.0966	0.0966	0.0000	1,383.4267	1,383.4267	0.0265	0.0254	1,391.6478
NaturalGas Unmitigated	0.1398	1.2312	0.7770	7.6200e-003		0.0966	0.0966		0.0966	0.0966	0.0000	1,383.4267	1,383.4267	0.0265	0.0254	1,391.6478

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	408494	2.2000e-003	0.0188	8.0100e-003	1.2000e-004		1.5200e-003	1.5200e-003		1.5200e-003	1.5200e-003	0.0000	21.7988	21.7988	4.2000e-004	4.0000e-004	21.9284
Apartments Mid Rise	1.30613e+007	0.0704	0.6018	0.2561	3.8400e-003		0.0487	0.0487		0.0487	0.0487	0.0000	696.9989	696.9989	0.0134	0.0128	701.1408
General Office Building	468450	2.5300e-003	0.0230	0.0193	1.4000e-004		1.7500e-003	1.7500e-003		1.7500e-003	1.7500e-003	0.0000	24.9983	24.9983	4.8000e-004	4.6000e-004	25.1468
High Turnover (Sit Down Restaurant)	8.30736e+006	0.0448	0.4072	0.3421	2.4400e-003		0.0310	0.0310		0.0310	0.0310	0.0000	443.3124	443.3124	8.5000e-003	8.1300e-003	445.9468
Hotel	1.74095e+006	9.3900e-003	0.0853	0.0717	5.1000e-004		6.4900e-003	6.4900e-003		6.4900e-003	6.4900e-003	0.0000	92.9036	92.9036	1.7800e-003	1.7000e-003	93.4557
Quality Restaurant	1.84608e+006	9.9500e-003	0.0905	0.0760	5.4000e-004		6.8800e-003	6.8800e-003		6.8800e-003	6.8800e-003	0.0000	98.5139	98.5139	1.8900e-003	1.8100e-003	99.0993
Regional Shopping Center	91840	5.0000e-004	4.5000e-003	3.7800e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	4.9009	4.9009	9.0000e-005	9.0000e-005	4.9301
Total		**0.1398**	**1.2312**	**0.7770**	**7.6200e-003**		**0.0966**	**0.0966**		**0.0966**	**0.0966**	**0.0000**	**1,383.4268**	**1,383.4268**	**0.0265**	**0.0254**	**1,391.6478**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	408494	2.2000e-003	0.0188	8.0100e-003	1.2000e-004		1.5200e-003	1.5200e-003		1.5200e-003	1.5200e-003	0.0000	21.7988	21.7988	4.2000e-004	4.0000e-004	21.9284
Apartments Mid Rise	1.30613e+007	0.0704	0.6018	0.2561	3.8400e-003		0.0487	0.0487		0.0487	0.0487	0.0000	696.9989	696.9989	0.0134	0.0128	701.1408
General Office Building	468450	2.5300e-003	0.0230	0.0193	1.4000e-004		1.7500e-003	1.7500e-003		1.7500e-003	1.7500e-003	0.0000	24.9983	24.9983	4.8000e-004	4.6000e-004	25.1468
High Turnover (Sit Down Restaurant)	8.30736e+006	0.0448	0.4072	0.3421	2.4400e-003		0.0310	0.0310		0.0310	0.0310	0.0000	443.3124	443.3124	8.5000e-003	8.1300e-003	445.9468
Hotel	1.74095e+006	9.3900e-003	0.0853	0.0717	5.1000e-004		6.4900e-003	6.4900e-003		6.4900e-003	6.4900e-003	0.0000	92.9036	92.9036	1.7800e-003	1.7000e-003	93.4557
Quality Restaurant	1.84608e+006	9.9500e-003	0.0905	0.0760	5.4000e-004		6.8800e-003	6.8800e-003		6.8800e-003	6.8800e-003	0.0000	98.5139	98.5139	1.8900e-003	1.8100e-003	99.0993
Regional Shopping Center	91840	5.0000e-004	4.5000e-003	3.7800e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	4.9009	4.9009	9.0000e-005	9.0000e-005	4.9301
Total		**0.1398**	**1.2312**	**0.7770**	**7.6200e-003**		**0.0966**	**0.0966**		**0.0966**	**0.0966**	**0.0000**	**1,383.4268**	**1,383.4268**	**0.0265**	**0.0254**	**1,391.6478**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	106010	33.7770	1.3900e-003	2.9000e-004	33.8978
Apartments Mid Rise	3.94697e+006	1,257.5879	0.0519	0.0107	1,262.0869
General Office Building	584550	186.2502	7.6900e-003	1.5900e-003	186.9165
High Turnover (Sit Down Restaurant)	1.58904e+006	506.3022	0.0209	4.3200e-003	508.1135
Hotel	550308	175.3399	7.2400e-003	1.5000e-003	175.9672
Quality Restaurant	353120	112.5116	4.6500e-003	9.6000e-004	112.9141
Regional Shopping Center	756000	240.8778	9.9400e-003	2.0600e-003	241.7395
Total		**2,512.6465**	**0.1037**	**0.0215**	**2,521.6356**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	106010	33.7770	1.3900e-003	2.9000e-004	33.8978
Apartments Mid Rise	3.94697e+006	1,257.5879	0.0519	0.0107	1,262.0869
General Office Building	584550	186.2502	7.6900e-003	1.5900e-003	186.9165
High Turnover (Sit Down Restaurant)	1.58904e+006	506.3022	0.0209	4.3200e-003	508.1135
Hotel	550308	175.3399	7.2400e-003	1.5000e-003	175.9672
Quality Restaurant	353120	112.5116	4.6500e-003	9.6000e-004	112.9141
Regional Shopping Center	756000	240.8778	9.9400e-003	2.0600e-003	241.7395
Total		**2,512.6465**	**0.1037**	**0.0215**	**2,521.6356**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	5.1437	0.2950	10.3804	1.6700e-003		0.0714	0.0714		0.0714	0.0714	0.0000	220.9670	220.9670	0.0201	3.7400e-003	222.5835
Unmitigated	5.1437	0.2950	10.3804	1.6700e-003		0.0714	0.0714		0.0714	0.0714	0.0000	220.9670	220.9670	0.0201	3.7400e-003	222.5835

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4137					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.3998					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0206	0.1763	0.0750	1.1200e-003		0.0143	0.0143		0.0143	0.0143	0.0000	204.1166	204.1166	3.9100e-003	3.7400e-003	205.3295
Landscaping	0.3096	0.1187	10.3054	5.4000e-004		0.0572	0.0572		0.0572	0.0572	0.0000	16.8504	16.8504	0.0161	0.0000	17.2540
Total	**5.1437**	**0.2950**	**10.3804**	**1.6600e-003**		**0.0714**	**0.0714**		**0.0714**	**0.0714**	**0.0000**	**220.9670**	**220.9670**	**0.0201**	**3.7400e-003**	**222.5835**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4137					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.3998					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0206	0.1763	0.0750	1.1200e-003		0.0143	0.0143		0.0143	0.0143	0.0000	204.1166	204.1166	3.9100e-003	3.7400e-003	205.3295
Landscaping	0.3096	0.1187	10.3054	5.4000e-004		0.0572	0.0572		0.0572	0.0572	0.0000	16.8504	16.8504	0.0161	0.0000	17.2540
Total	**5.1437**	**0.2950**	**10.3804**	**1.6600e-003**		**0.0714**	**0.0714**		**0.0714**	**0.0714**	**0.0000**	**220.9670**	**220.9670**	**0.0201**	**3.7400e-003**	**222.5835**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	585.8052	3.0183	0.0755	683.7567
Unmitigated	585.8052	3.0183	0.0755	683.7567

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	1.62885 / 1.02688	10.9095	0.0535	1.3400e-003	12.6471
Apartments Mid Rise	63.5252 / 40.0485	425.4719	2.0867	0.0523	493.2363
General Office Building	7.99802 / 4.90201	53.0719	0.2627	6.5900e-003	61.6019
High Turnover (Sit Down Restaurant)	10.9272 / 0.697482	51.2702	0.3580	8.8200e-003	62.8482
Hotel	1.26834 / 0.140927	6.1633	0.0416	1.0300e-003	7.5079
Quality Restaurant	2.42827 / 0.154996	11.3934	0.0796	1.9600e-003	13.9663
Regional Shopping Center	4.14806 / 2.54236	27.5250	0.1363	3.4200e-003	31.9490
Total		**585.8052**	**3.0183**	**0.0755**	**683.7567**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	1.62885 / 1.02688	10.9095	0.0535	1.3400e-003	12.6471
Apartments Mid Rise	63.5252 / 40.0485	425.4719	2.0867	0.0523	493.2363
General Office Building	7.99802 / 4.90201	53.0719	0.2627	6.5900e-003	61.6019
High Turnover (Sit Down Restaurant)	10.9272 / 0.697482	51.2702	0.3580	8.8200e-003	62.8482
Hotel	1.26834 / 0.140927	6.1633	0.0416	1.0300e-003	7.5079
Quality Restaurant	2.42827 / 0.154996	11.3934	0.0796	1.9600e-003	13.9663
Regional Shopping Center	4.14806 / 2.54236	27.5250	0.1363	3.4200e-003	31.9490
Total		**585.8052**	**3.0183**	**0.0755**	**683.7567**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	207.8079	12.2811	0.0000	514.8354
Unmitigated	207.8079	12.2811	0.0000	514.8354

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	11.5	2.3344	0.1380	0.0000	5.7834
Apartments Mid Rise	448.5	91.0415	5.3804	0.0000	225.5513
General Office Building	41.85	8.4952	0.5021	0.0000	21.0464
High Turnover (Sit Down Restaurant)	428.4	86.9613	5.1393	0.0000	215.4430
Hotel	27.38	5.5579	0.3285	0.0000	13.7694
Quality Restaurant	7.3	1.4818	0.0876	0.0000	3.6712
Regional Shopping Center	58.8	11.9359	0.7054	0.0000	29.5706
Total		**207.8079**	**12.2811**	**0.0000**	**514.8354**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	11.5	2.3344	0.1380	0.0000	5.7834
Apartments Mid Rise	448.5	91.0415	5.3804	0.0000	225.5513
General Office Building	41.85	8.4952	0.5021	0.0000	21.0464
High Turnover (Sit Down Restaurant)	428.4	86.9613	5.1393	0.0000	215.4430
Hotel	27.38	5.5579	0.3285	0.0000	13.7694
Quality Restaurant	7.3	1.4818	0.0876	0.0000	3.6712
Regional Shopping Center	58.8	11.9359	0.7054	0.0000	29.5706
Total		**207.8079**	**12.2811**	**0.0000**	**514.8354**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Village South Specific Plan (Proposed)

Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	45.00	1000sqft	1.03	45,000.00	0
High Turnover (Sit Down Restaurant)	36.00	1000sqft	0.83	36,000.00	0
Hotel	50.00	Room	1.67	72,600.00	0
Quality Restaurant	8.00	1000sqft	0.18	8,000.00	0
Apartments Low Rise	25.00	Dwelling Unit	1.56	25,000.00	72
Apartments Mid Rise	975.00	Dwelling Unit	25.66	975,000.00	2789
Regional Shopping Center	56.00	1000sqft	1.29	56,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	9			**Operational Year**	2028
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Summer

Project Characteristics - Consistent with the DEIR's model.

Land Use - See SWAPE comment regarding residential and retail land uses.

Construction Phase - See SWAPE comment regarding individual construction phase lengths.

Demolition - Consistent with the DEIR's model. See SWAPE comment regarding demolition.

Vehicle Trips - Saturday trips consistent with the DEIR's model. See SWAPE comment regarding weekday and Sunday trips.

Woodstoves - Woodstoves and wood-burning fireplaces consistent with the DEIR's model. See SWAPE comment regarding gas fireplaces.

Energy Use -

Construction Off-road Equipment Mitigation - See SWAPE comment on construction-related mitigation.

Area Mitigation - See SWAPE comment regarding operational mitigation measures.

Water Mitigation - See SWAPE comment regarding operational mitigation measures.

Table Name	Column Name	Default Value	New Value
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberWood	1.25	0.00
tblFireplaces	NumberWood	48.75	0.00
tblVehicleTrips	ST_TR	7.16	6.17
tblVehicleTrips	ST_TR	6.39	3.87
tblVehicleTrips	ST_TR	2.46	1.39
tblVehicleTrips	ST_TR	158.37	79.82
tblVehicleTrips	ST_TR	8.19	3.75
tblVehicleTrips	ST_TR	94.36	63.99
tblVehicleTrips	ST_TR	49.97	10.74
tblVehicleTrips	SU_TR	6.07	6.16
tblVehicleTrips	SU_TR	5.86	4.18
tblVehicleTrips	SU_TR	1.05	0.69
tblVehicleTrips	SU_TR	131.84	78.27

tblVehicleTrips	SU_TR	5.95	3.20
tblVehicleTrips	SU_TR	72.16	57.65
tblVehicleTrips	SU_TR	25.24	6.39
tblVehicleTrips	WD_TR	6.59	5.83
tblVehicleTrips	WD_TR	6.65	4.13
tblVehicleTrips	WD_TR	11.03	6.41
tblVehicleTrips	WD_TR	127.15	65.80
tblVehicleTrips	WD_TR	8.17	3.84
tblVehicleTrips	WD_TR	89.95	62.64
tblVehicleTrips	WD_TR	42.70	9.43
tblWoodstoves	NumberCatalytic	1.25	0.00
tblWoodstoves	NumberCatalytic	48.75	0.00
tblWoodstoves	NumberNoncatalytic	1.25	0.00
tblWoodstoves	NumberNoncatalytic	48.75	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.2769	46.4588	31.6840	0.0643	18.2675	2.0461	20.3135	9.9840	1.8824	11.8664	0.0000	6,234.7974	6,234.7974	1.9495	0.0000	6,283.5352
2022	5.3304	38.8967	49.5629	0.1517	9.8688	1.6366	10.7727	3.6558	1.5057	5.1615	0.0000	15,251.5674	15,251.5674	1.9503	0.0000	15,278.5288
2023	4.8957	26.3317	46.7567	0.1472	9.8688	0.7794	10.6482	2.6381	0.7322	3.3702	0.0000	14,807.5269	14,807.5269	1.0250	0.0000	14,833.1521
2024	237.1630	9.5575	15.1043	0.0244	1.7884	0.4698	1.8628	0.4743	0.4322	0.5476	0.0000	2,361.3989	2,361.3989	0.7177	0.0000	2,379.3421
Maximum	**237.1630**	**46.4588**	**49.5629**	**0.1517**	**18.2675**	**2.0461**	**20.3135**	**9.9840**	**1.8824**	**11.8664**	**0.0000**	**15,251.5674**	**15,251.5674**	**1.9503**	**0.0000**	**15,278.5288**

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.2769	46.4588	31.6840	0.0643	18.2675	2.0461	20.3135	9.9840	1.8824	11.8664	0.0000	6,234.7974	6,234.7974	1.9495	0.0000	6,283.5352
2022	5.3304	38.8967	49.5629	0.1517	9.8688	1.6366	10.7727	3.6558	1.5057	5.1615	0.0000	15,251.5674	15,251.5674	1.9503	0.0000	15,278.5288
2023	4.8957	26.3317	46.7567	0.1472	9.8688	0.7794	10.6482	2.6381	0.7322	3.3702	0.0000	14,807.5269	14,807.5269	1.0250	0.0000	14,833.1520
2024	237.1630	9.5575	15.1043	0.0244	1.7884	0.4698	1.8628	0.4743	0.4322	0.5476	0.0000	2,361.3989	2,361.3989	0.7177	0.0000	2,379.3421
Maximum	**237.1630**	**46.4588**	**49.5629**	**0.1517**	**18.2675**	**2.0461**	**20.3135**	**9.9840**	**1.8824**	**11.8664**	**0.0000**	**15,251.5674**	**15,251.5674**	**1.9503**	**0.0000**	**15,278.5288**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Energy	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387
Mobile	9.8489	45.4304	114.8495	0.4917	45.9592	0.3360	46.2951	12.2950	0.3119	12.6070		50,306.6034	50,306.6034	2.1807		50,361.1208
Total	**41.1168**	**67.2262**	**207.5497**	**0.6278**	**45.9592**	**2.4626**	**48.4217**	**12.2950**	**2.4385**	**14.7336**	**0.0000**	**76,811.1816**	**76,811.1816**	**2.8282**	**0.4832**	**77,025.8786**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Energy	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387
Mobile	9.8489	45.4304	114.8495	0.4917	45.9592	0.3360	46.2951	12.2950	0.3119	12.6070		50,306.6034	50,306.6034	2.1807		50,361.1208
Total	**41.1168**	**67.2262**	**207.5497**	**0.6278**	**45.9592**	**2.4626**	**48.4217**	**12.2950**	**2.4385**	**14.7336**	**0.0000**	**76,811.1816**	**76,811.1816**	**2.8282**	**0.4832**	**77,025.8786**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/1/2021	10/12/2021	5	30	
2	Site Preparation	Site Preparation	10/13/2021	11/9/2021	5	20	
3	Grading	Grading	11/10/2021	1/11/2022	5	45	
4	Building Construction	Building Construction	1/12/2022	12/12/2023	5	500	
5	Paving	Paving	12/13/2023	1/30/2024	5	35	
6	Architectural Coating	Architectural Coating	1/31/2024	3/19/2024	5	35	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 112.5

Acres of Paving: 0

Residential Indoor: 2,025,000; Residential Outdoor: 675,000; Non-Residential Indoor: 326,400; Non-Residential Outdoor: 108,800; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	458.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	801.00	143.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	160.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3074	0.0000	3.3074	0.5008	0.0000	0.5008			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411		3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**3.3074**	**1.5513**	**4.8588**	**0.5008**	**1.4411**	**1.9419**		**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1273	4.0952	0.9602	0.0119	0.2669	0.0126	0.2795	0.0732	0.0120	0.0852		1,292.2413	1,292.2413	0.0877		1,294.4337
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0643	0.0442	0.6042	1.7100e-003	0.1677	1.3500e-003	0.1690	0.0445	1.2500e-003	0.0457		170.8155	170.8155	5.0300e-003		170.9413
Total	**0.1916**	**4.1394**	**1.5644**	**0.0136**	**0.4346**	**0.0139**	**0.4485**	**0.1176**	**0.0133**	**0.1309**		**1,463.0568**	**1,463.0568**	**0.0927**		**1,465.3750**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3074	0.0000	3.3074	0.5008	0.0000	0.5008			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411	0.0000	3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**3.3074**	**1.5513**	**4.8588**	**0.5008**	**1.4411**	**1.9419**	**0.0000**	**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1273	4.0952	0.9602	0.0119	0.2669	0.0126	0.2795	0.0732	0.0120	0.0852		1,292.2413	1,292.2413	0.0877		1,294.4337
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0643	0.0442	0.6042	1.7100e-003	0.1677	1.3500e-003	0.1690	0.0445	1.2500e-003	0.0457		170.8155	170.8155	5.0300e-003		170.9413
Total	**0.1916**	**4.1394**	**1.5644**	**0.0136**	**0.4346**	**0.0139**	**0.4485**	**0.1176**	**0.0133**	**0.1309**		**1,463.0568**	**1,463.0568**	**0.0927**		**1,465.3750**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**		**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0772	0.0530	0.7250	2.0600e-003	0.2012	1.6300e-003	0.2028	0.0534	1.5000e-003	0.0549		204.9786	204.9786	6.0400e-003		205.1296
Total	**0.0772**	**0.0530**	**0.7250**	**2.0600e-003**	**0.2012**	**1.6300e-003**	**0.2028**	**0.0534**	**1.5000e-003**	**0.0549**		**204.9786**	**204.9786**	**6.0400e-003**		**205.1296**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0772	0.0530	0.7250	2.0600e-003	0.2012	1.6300e-003	0.2028	0.0534	1.5000e-003	0.0549		204.9786	204.9786	6.0400e-003		205.1296
Total	**0.0772**	**0.0530**	**0.7250**	**2.0600e-003**	**0.2012**	**1.6300e-003**	**0.2028**	**0.0534**	**1.5000e-003**	**0.0549**		**204.9786**	**204.9786**	**6.0400e-003**		**205.1296**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265		6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**8.6733**	**1.9853**	**10.6587**	**3.5965**	**1.8265**	**5.4230**		**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0857	0.0589	0.8056	2.2900e-003	0.2236	1.8100e-003	0.2254	0.0593	1.6600e-003	0.0610		227.7540	227.7540	6.7100e-003		227.9217
Total	**0.0857**	**0.0589**	**0.8056**	**2.2900e-003**	**0.2236**	**1.8100e-003**	**0.2254**	**0.0593**	**1.6600e-003**	**0.0610**		**227.7540**	**227.7540**	**6.7100e-003**		**227.9217**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265	0.0000	6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**8.6733**	**1.9853**	**10.6587**	**3.5965**	**1.8265**	**5.4230**	**0.0000**	**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0857	0.0589	0.8056	2.2900e-003	0.2236	1.8100e-003	0.2254	0.0593	1.6600e-003	0.0610		227.7540	227.7540	6.7100e-003		227.9217
Total	**0.0857**	**0.0589**	**0.8056**	**2.2900e-003**	**0.2236**	**1.8100e-003**	**0.2254**	**0.0593**	**1.6600e-003**	**0.0610**		**227.7540**	**227.7540**	**6.7100e-003**		**227.9217**

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041		6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.6733**	**1.6349**	**10.3082**	**3.5965**	**1.5041**	**5.1006**		**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

3.4 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0803	0.0532	0.7432	2.2100e-003	0.2236	1.7500e-003	0.2253	0.0593	1.6100e-003	0.0609		219.7425	219.7425	6.0600e-003		219.8941
Total	**0.0803**	**0.0532**	**0.7432**	**2.2100e-003**	**0.2236**	**1.7500e-003**	**0.2253**	**0.0593**	**1.6100e-003**	**0.0609**		**219.7425**	**219.7425**	**6.0600e-003**		**219.8941**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041	0.0000	6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.6733**	**1.6349**	**10.3082**	**3.5965**	**1.5041**	**5.1006**	**0.0000**	**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

3.4 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0803	0.0532	0.7432	2.2100e-003	0.2236	1.7500e-003	0.2253	0.0593	1.6100e-003	0.0609		219.7425	219.7425	6.0600e-003		219.8941
Total	**0.0803**	**0.0532**	**0.7432**	**2.2100e-003**	**0.2236**	**1.7500e-003**	**0.2253**	**0.0593**	**1.6100e-003**	**0.0609**		**219.7425**	**219.7425**	**6.0600e-003**		**219.8941**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4079	13.2032	3.4341	0.0364	0.9155	0.0248	0.9404	0.2636	0.0237	0.2873		3,896.5482	3,896.5482	0.2236		3,902.1384
Worker	3.2162	2.1318	29.7654	0.0883	8.9533	0.0701	9.0234	2.3745	0.0646	2.4390		8,800.6857	8,800.6857	0.2429		8,806.7582
Total	**3.6242**	**15.3350**	**33.1995**	**0.1247**	**9.8688**	**0.0949**	**9.9637**	**2.6381**	**0.0883**	**2.7263**		**12,697.2339**	**12,697.2339**	**0.4665**		**12,708.8966**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4079	13.2032	3.4341	0.0364	0.9155	0.0248	0.9404	0.2636	0.0237	0.2873		3,896.5482	3,896.5482	0.2236		3,902.1384
Worker	3.2162	2.1318	29.7654	0.0883	8.9533	0.0701	9.0234	2.3745	0.0646	2.4390		8,800.6857	8,800.6857	0.2429		8,806.7582
Total	**3.6242**	**15.3350**	**33.1995**	**0.1247**	**9.8688**	**0.0949**	**9.9637**	**2.6381**	**0.0883**	**2.7263**		**12,697.2339**	**12,697.2339**	**0.4665**		**12,708.8966**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3027	10.0181	3.1014	0.0352	0.9156	0.0116	0.9271	0.2636	0.0111	0.2747		3,773.8762	3,773.8762	0.1982		3,778.8300
Worker	3.0203	1.9287	27.4113	0.0851	8.9533	0.0681	9.0214	2.3745	0.0627	2.4372		8,478.4408	8,478.4408	0.2190		8,483.9160
Total	**3.3229**	**11.9468**	**30.5127**	**0.1203**	**9.8688**	**0.0797**	**9.9485**	**2.6381**	**0.0738**	**2.7118**		**12,252.3170**	**12,252.3170**	**0.4172**		**12,262.7460**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3027	10.0181	3.1014	0.0352	0.9156	0.0116	0.9271	0.2636	0.0111	0.2747		3,773.8762	3,773.8762	0.1982		3,778.8300
Worker	3.0203	1.9287	27.4113	0.0851	8.9533	0.0681	9.0214	2.3745	0.0627	2.4372		8,478.4408	8,478.4408	0.2190		8,483.9160
Total	**3.3229**	**11.9468**	**30.5127**	**0.1203**	**9.8688**	**0.0797**	**9.9485**	**2.6381**	**0.0738**	**2.7118**		**12,252.3170**	**12,252.3170**	**0.4172**		**12,262.7460**

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

3.6 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0566	0.0361	0.5133	1.5900e-003	0.1677	1.2800e-003	0.1689	0.0445	1.1700e-003	0.0456		158.7723	158.7723	4.1000e-003		158.8748
Total	**0.0566**	**0.0361**	**0.5133**	**1.5900e-003**	**0.1677**	**1.2800e-003**	**0.1689**	**0.0445**	**1.1700e-003**	**0.0456**		**158.7723**	**158.7723**	**4.1000e-003**		**158.8748**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

3.6 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0566	0.0361	0.5133	1.5900e-003	0.1677	1.2800e-003	0.1689	0.0445	1.1700e-003	0.0456		158.7723	158.7723	4.1000e-003		158.8748
Total	**0.0566**	**0.0361**	**0.5133**	**1.5900e-003**	**0.1677**	**1.2800e-003**	**0.1689**	**0.0445**	**1.1700e-003**	**0.0456**		**158.7723**	**158.7723**	**4.1000e-003**		**158.8748**

3.6 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9882**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**		**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

3.6 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0535	0.0329	0.4785	1.5400e-003	0.1677	1.2600e-003	0.1689	0.0445	1.1600e-003	0.0456		153.8517	153.8517	3.7600e-003		153.9458
Total	**0.0535**	**0.0329**	**0.4785**	**1.5400e-003**	**0.1677**	**1.2600e-003**	**0.1689**	**0.0445**	**1.1600e-003**	**0.0456**		**153.8517**	**153.8517**	**3.7600e-003**		**153.9458**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310	0.0000	2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9882**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**	**0.0000**	**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

3.6 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0535	0.0329	0.4785	1.5400e-003	0.1677	1.2600e-003	0.1689	0.0445	1.1600e-003	0.0456		153.8517	153.8517	3.7600e-003		153.9458
Total	**0.0535**	**0.0329**	**0.4785**	**1.5400e-003**	**0.1677**	**1.2600e-003**	**0.1689**	**0.0445**	**1.1600e-003**	**0.0456**		**153.8517**	**153.8517**	**3.7600e-003**		**153.9458**

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	236.4115					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**236.5923**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.7 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.5707	0.3513	5.1044	0.0165	1.7884	0.0134	1.8018	0.4743	0.0123	0.4866		1,641.0852	1,641.0852	0.0401		1,642.0886
Total	**0.5707**	**0.3513**	**5.1044**	**0.0165**	**1.7884**	**0.0134**	**1.8018**	**0.4743**	**0.0123**	**0.4866**		**1,641.0852**	**1,641.0852**	**0.0401**		**1,642.0886**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	236.4115					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**236.5923**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.7 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.5707	0.3513	5.1044	0.0165	1.7884	0.0134	1.8018	0.4743	0.0123	0.4866		1,641.0852	1,641.0852	0.0401		1,642.0886
Total	**0.5707**	**0.3513**	**5.1044**	**0.0165**	**1.7884**	**0.0134**	**1.8018**	**0.4743**	**0.0123**	**0.4866**		**1,641.0852**	**1,641.0852**	**0.0401**		**1,642.0886**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	9.8489	45.4304	114.8495	0.4917	45.9592	0.3360	46.2951	12.2950	0.3119	12.6070		50,306.6034	50,306.6034	2.1807		50,361.1208
Unmitigated	9.8489	45.4304	114.8495	0.4917	45.9592	0.3360	46.2951	12.2950	0.3119	12.6070		50,306.6034	50,306.6034	2.1807		50,361.1208

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	145.75	154.25	154.00	506,227	506,227
Apartments Mid Rise	4,026.75	3,773.25	4075.50	13,660,065	13,660,065
General Office Building	288.45	62.55	31.05	706,812	706,812
High Turnover (Sit Down Restaurant)	2,368.80	2,873.52	2817.72	3,413,937	3,413,937
Hotel	192.00	187.50	160.00	445,703	445,703
Quality Restaurant	501.12	511.92	461.20	707,488	707,488
Regional Shopping Center	528.08	601.44	357.84	1,112,221	1,112,221
Total	8,050.95	8,164.43	8,057.31	20,552,452	20,552,452

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
High Turnover (Sit Down	16.60	8.40	6.90	8.50	72.50	19.00	37	20	43
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4
Quality Restaurant	16.60	8.40	6.90	12.00	69.00	19.00	38	18	44
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Apartments Mid Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
General Office Building	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
High Turnover (Sit Down Restaurant)	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Hotel	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Quality Restaurant	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Regional Shopping Center	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387
NaturalGas Unmitigated	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	1119.16	0.0121	0.1031	0.0439	6.6000e-004		8.3400e-003	8.3400e-003		8.3400e-003	8.3400e-003		131.6662	131.6662	2.5200e-003	2.4100e-003	132.4486
Apartments Mid Rise	35784.3	0.3859	3.2978	1.4033	0.0211		0.2666	0.2666		0.2666	0.2666		4,209.9164	4,209.9164	0.0807	0.0772	4,234.9339
General Office Building	1283.42	0.0138	0.1258	0.1057	7.5000e-004		9.5600e-003	9.5600e-003		9.5600e-003	9.5600e-003		150.9911	150.9911	2.8900e-003	2.7700e-003	151.8884
High Turnover (Sit Down Restaurant)	22759.9	0.2455	2.2314	1.8743	0.0134		0.1696	0.1696		0.1696	0.1696		2,677.6342	2,677.6342	0.0513	0.0491	2,693.5460
Hotel	4769.72	0.0514	0.4676	0.3928	2.8100e-003		0.0355	0.0355		0.0355	0.0355		561.1436	561.1436	0.0108	0.0103	564.4782
Quality Restaurant	5057.75	0.0545	0.4959	0.4165	2.9800e-003		0.0377	0.0377		0.0377	0.0377		595.0298	595.0298	0.0114	0.0109	598.5658
Regional Shopping Center	251.616	2.7100e-003	0.0247	0.0207	1.5000e-004		1.8700e-003	1.8700e-003		1.8700e-003	1.8700e-003		29.6019	29.6019	5.7000e-004	5.4000e-004	29.7778
Total		**0.7660**	**6.7463**	**4.2573**	**0.0418**		**0.5292**	**0.5292**		**0.5292**	**0.5292**		**8,355.9832**	**8,355.9832**	**0.1602**	**0.1532**	**8,405.6387**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	1.11916	0.0121	0.1031	0.0439	6.6000e-004		8.3400e-003	8.3400e-003		8.3400e-003	8.3400e-003		131.6662	131.6662	2.5200e-003	2.4100e-003	132.4486
Apartments Mid Rise	35.7843	0.3859	3.2978	1.4033	0.0211		0.2666	0.2666		0.2666	0.2666		4,209.9164	4,209.9164	0.0807	0.0772	4,234.9339
General Office Building	1.28342	0.0138	0.1258	0.1057	7.5000e-004		9.5600e-003	9.5600e-003		9.5600e-003	9.5600e-003		150.9911	150.9911	2.8900e-003	2.7700e-003	151.8884
High Turnover (Sit Down Restaurant)	22.7599	0.2455	2.2314	1.8743	0.0134		0.1696	0.1696		0.1696	0.1696		2,677.6342	2,677.6342	0.0513	0.0491	2,693.5460
Hotel	4.76972	0.0514	0.4676	0.3928	2.8100e-003		0.0355	0.0355		0.0355	0.0355		561.1436	561.1436	0.0108	0.0103	564.4782
Quality Restaurant	5.05775	0.0545	0.4959	0.4165	2.9800e-003		0.0377	0.0377		0.0377	0.0377		595.0298	595.0298	0.0114	0.0109	598.5658
Regional Shopping Center	0.251616	2.7100e-003	0.0247	0.0207	1.5000e-004		1.8700e-003	1.8700e-003		1.8700e-003	1.8700e-003		29.6019	29.6019	5.7000e-004	5.4000e-004	29.7778
Total		**0.7660**	**6.7463**	**4.2573**	**0.0418**		**0.5292**	**0.5292**		**0.5292**	**0.5292**		**8,355.9832**	**8,355.9832**	**0.1602**	**0.1532**	**8,405.6387**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Unmitigated	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.2670					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	24.1085					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	1.6500	14.1000	6.0000	0.0900		1.1400	1.1400		1.1400	1.1400	0.0000	18,000.0000	18,000.0000	0.3450	0.3300	18,106.9650
Landscaping	2.4766	0.9496	82.4430	4.3600e-003		0.4574	0.4574		0.4574	0.4574		148.5950	148.5950	0.1424		152.1542
Total	**30.5020**	**15.0496**	**88.4430**	**0.0944**		**1.5974**	**1.5974**		**1.5974**	**1.5974**	**0.0000**	**18,148.5950**	**18,148.5950**	**0.4874**	**0.3300**	**18,259.1192**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.2670					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	24.1085					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	1.6500	14.1000	6.0000	0.0900		1.1400	1.1400		1.1400	1.1400	0.0000	18,000.0000	18,000.0000	0.3450	0.3300	18,106.9650
Landscaping	2.4766	0.9496	82.4430	4.3600e-003		0.4574	0.4574		0.4574	0.4574		148.5950	148.5950	0.1424		152.1542
Total	**30.5020**	**15.0496**	**88.4430**	**0.0944**		**1.5974**	**1.5974**		**1.5974**	**1.5974**	**0.0000**	**18,148.5950**	**18,148.5950**	**0.4874**	**0.3300**	**18,259.1192**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Village South Specific Plan (Proposed)

Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	45.00	1000sqft	1.03	45,000.00	0
High Turnover (Sit Down Restaurant)	36.00	1000sqft	0.83	36,000.00	0
Hotel	50.00	Room	1.67	72,600.00	0
Quality Restaurant	8.00	1000sqft	0.18	8,000.00	0
Apartments Low Rise	25.00	Dwelling Unit	1.56	25,000.00	72
Apartments Mid Rise	975.00	Dwelling Unit	25.66	975,000.00	2789
Regional Shopping Center	56.00	1000sqft	1.29	56,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	9			**Operational Year**	2028
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Winter

Project Characteristics - Consistent with the DEIR's model.

Land Use - See SWAPE comment regarding residential and retail land uses.

Construction Phase - See SWAPE comment regarding individual construction phase lengths.

Demolition - Consistent with the DEIR's model. See SWAPE comment regarding demolition.

Vehicle Trips - Saturday trips consistent with the DEIR's model. See SWAPE comment regarding weekday and Sunday trips.

Woodstoves - Woodstoves and wood-burning fireplaces consistent with the DEIR's model. See SWAPE comment regarding gas fireplaces.

Energy Use -

Construction Off-road Equipment Mitigation - See SWAPE comment on construction-related mitigation.

Area Mitigation - See SWAPE comment regarding operational mitigation measures.

Water Mitigation - See SWAPE comment regarding operational mitigation measures.

Table Name	Column Name	Default Value	New Value
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberWood	1.25	0.00
tblFireplaces	NumberWood	48.75	0.00
tblVehicleTrips	ST_TR	7.16	6.17
tblVehicleTrips	ST_TR	6.39	3.87
tblVehicleTrips	ST_TR	2.46	1.39
tblVehicleTrips	ST_TR	158.37	79.82
tblVehicleTrips	ST_TR	8.19	3.75
tblVehicleTrips	ST_TR	94.36	63.99
tblVehicleTrips	ST_TR	49.97	10.74
tblVehicleTrips	SU_TR	6.07	6.16
tblVehicleTrips	SU_TR	5.86	4.18
tblVehicleTrips	SU_TR	1.05	0.69
tblVehicleTrips	SU_TR	131.84	78.27

tblVehicleTrips	SU_TR	5.95	3.20
tblVehicleTrips	SU_TR	72.16	57.65
tblVehicleTrips	SU_TR	25.24	6.39
tblVehicleTrips	WD_TR	6.59	5.83
tblVehicleTrips	WD_TR	6.65	4.13
tblVehicleTrips	WD_TR	11.03	6.41
tblVehicleTrips	WD_TR	127.15	65.80
tblVehicleTrips	WD_TR	8.17	3.84
tblVehicleTrips	WD_TR	89.95	62.64
tblVehicleTrips	WD_TR	42.70	9.43
tblWoodstoves	NumberCatalytic	1.25	0.00
tblWoodstoves	NumberCatalytic	48.75	0.00
tblWoodstoves	NumberNoncatalytic	1.25	0.00
tblWoodstoves	NumberNoncatalytic	48.75	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.2865	46.4651	31.6150	0.0642	18.2675	2.0461	20.3135	9.9840	1.8824	11.8664	0.0000	6,221.4937	6,221.4937	1.9491	0.0000	6,270.2214
2022	5.7218	38.9024	47.3319	0.1455	9.8688	1.6366	10.7736	3.6558	1.5057	5.1615	0.0000	14,630.3099	14,630.3099	1.9499	0.0000	14,657.2663
2023	5.2705	26.4914	44.5936	0.1413	9.8688	0.7800	10.6488	2.6381	0.7328	3.3708	0.0000	14,210.3424	14,210.3424	1.0230	0.0000	14,235.9160
2024	237.2328	9.5610	15.0611	0.0243	1.7884	0.4698	1.8628	0.4743	0.4322	0.5476	0.0000	2,352.4178	2,352.4178	0.7175	0.0000	2,370.3550
Maximum	**237.2328**	**46.4651**	**47.3319**	**0.1455**	**18.2675**	**2.0461**	**20.3135**	**9.9840**	**1.8824**	**11.8664**	**0.0000**	**14,630.3099**	**14,630.3099**	**1.9499**	**0.0000**	**14,657.2663**

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.2865	46.4651	31.6150	0.0642	18.2675	2.0461	20.3135	9.9840	1.8824	11.8664	0.0000	6,221.4937	6,221.4937	1.9491	0.0000	6,270.2214
2022	5.7218	38.9024	47.3319	0.1455	9.8688	1.6366	10.7736	3.6558	1.5057	5.1615	0.0000	14,630.3099	14,630.3099	1.9499	0.0000	14,657.2663
2023	5.2705	26.4914	44.5936	0.1413	9.8688	0.7800	10.6488	2.6381	0.7328	3.3708	0.0000	14,210.3424	14,210.3424	1.0230	0.0000	14,235.9160
2024	237.2328	9.5610	15.0611	0.0243	1.7884	0.4698	1.8628	0.4743	0.4322	0.5476	0.0000	2,352.4178	2,352.4178	0.7175	0.0000	2,370.3550
Maximum	**237.2328**	**46.4651**	**47.3319**	**0.1455**	**18.2675**	**2.0461**	**20.3135**	**9.9840**	**1.8824**	**11.8664**	**0.0000**	**14,630.3099**	**14,630.3099**	**1.9499**	**0.0000**	**14,657.2663**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Energy	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387
Mobile	9.5233	45.9914	110.0422	0.4681	45.9592	0.3373	46.2965	12.2950	0.3132	12.6083		47,917.8005	47,917.8005	2.1953		47,972.6839
Total	**40.7912**	**67.7872**	**202.7424**	**0.6043**	**45.9592**	**2.4640**	**48.4231**	**12.2950**	**2.4399**	**14.7349**	**0.0000**	**74,422.3787**	**74,422.3787**	**2.8429**	**0.4832**	**74,637.4417**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Energy	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387
Mobile	9.5233	45.9914	110.0422	0.4681	45.9592	0.3373	46.2965	12.2950	0.3132	12.6083		47,917.8005	47,917.8005	2.1953		47,972.6839
Total	**40.7912**	**67.7872**	**202.7424**	**0.6043**	**45.9592**	**2.4640**	**48.4231**	**12.2950**	**2.4399**	**14.7349**	**0.0000**	**74,422.3787**	**74,422.3787**	**2.8429**	**0.4832**	**74,637.4417**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/1/2021	10/12/2021	5	30	
2	Site Preparation	Site Preparation	10/13/2021	11/9/2021	5	20	
3	Grading	Grading	11/10/2021	1/11/2022	5	45	
4	Building Construction	Building Construction	1/12/2022	12/12/2023	5	500	
5	Paving	Paving	12/13/2023	1/30/2024	5	35	
6	Architectural Coating	Architectural Coating	1/31/2024	3/19/2024	5	35	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 112.5

Acres of Paving: 0

Residential Indoor: 2,025,000; Residential Outdoor: 675,000; Non-Residential Indoor: 326,400; Non-Residential Outdoor: 108,800; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	458.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	801.00	143.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	160.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3074	0.0000	3.3074	0.5008	0.0000	0.5008			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411		3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**3.3074**	**1.5513**	**4.8588**	**0.5008**	**1.4411**	**1.9419**		**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1304	4.1454	1.0182	0.0117	0.2669	0.0128	0.2797	0.0732	0.0122	0.0854		1,269.8555	1,269.8555	0.0908		1,272.1252
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0715	0.0489	0.5524	1.6100e-003	0.1677	1.3500e-003	0.1690	0.0445	1.2500e-003	0.0457		160.8377	160.8377	4.7300e-003		160.9560
Total	**0.2019**	**4.1943**	**1.5706**	**0.0133**	**0.4346**	**0.0141**	**0.4487**	**0.1176**	**0.0135**	**0.1311**		**1,430.6932**	**1,430.6932**	**0.0955**		**1,433.0812**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3074	0.0000	3.3074	0.5008	0.0000	0.5008			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411	0.0000	3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**3.3074**	**1.5513**	**4.8588**	**0.5008**	**1.4411**	**1.9419**	**0.0000**	**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1304	4.1454	1.0182	0.0117	0.2669	0.0128	0.2797	0.0732	0.0122	0.0854		1,269.8555	1,269.8555	0.0908		1,272.1252
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0715	0.0489	0.5524	1.6100e-003	0.1677	1.3500e-003	0.1690	0.0445	1.2500e-003	0.0457		160.8377	160.8377	4.7300e-003		160.9560
Total	**0.2019**	**4.1943**	**1.5706**	**0.0133**	**0.4346**	**0.0141**	**0.4487**	**0.1176**	**0.0135**	**0.1311**		**1,430.6932**	**1,430.6932**	**0.0955**		**1,433.0812**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**		**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0858	0.0587	0.6629	1.9400e-003	0.2012	1.6300e-003	0.2028	0.0534	1.5000e-003	0.0549		193.0052	193.0052	5.6800e-003		193.1472
Total	**0.0858**	**0.0587**	**0.6629**	**1.9400e-003**	**0.2012**	**1.6300e-003**	**0.2028**	**0.0534**	**1.5000e-003**	**0.0549**		**193.0052**	**193.0052**	**5.6800e-003**		**193.1472**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0858	0.0587	0.6629	1.9400e-003	0.2012	1.6300e-003	0.2028	0.0534	1.5000e-003	0.0549		193.0052	193.0052	5.6800e-003		193.1472
Total	**0.0858**	**0.0587**	**0.6629**	**1.9400e-003**	**0.2012**	**1.6300e-003**	**0.2028**	**0.0534**	**1.5000e-003**	**0.0549**		**193.0052**	**193.0052**	**5.6800e-003**		**193.1472**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265		6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**8.6733**	**1.9853**	**10.6587**	**3.5965**	**1.8265**	**5.4230**		**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0954	0.0652	0.7365	2.1500e-003	0.2236	1.8100e-003	0.2254	0.0593	1.6600e-003	0.0610		214.4502	214.4502	6.3100e-003		214.6080
Total	**0.0954**	**0.0652**	**0.7365**	**2.1500e-003**	**0.2236**	**1.8100e-003**	**0.2254**	**0.0593**	**1.6600e-003**	**0.0610**		**214.4502**	**214.4502**	**6.3100e-003**		**214.6080**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265	0.0000	6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**8.6733**	**1.9853**	**10.6587**	**3.5965**	**1.8265**	**5.4230**	**0.0000**	**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0954	0.0652	0.7365	2.1500e-003	0.2236	1.8100e-003	0.2254	0.0593	1.6600e-003	0.0610		214.4502	214.4502	6.3100e-003		214.6080
Total	**0.0954**	**0.0652**	**0.7365**	**2.1500e-003**	**0.2236**	**1.8100e-003**	**0.2254**	**0.0593**	**1.6600e-003**	**0.0610**		**214.4502**	**214.4502**	**6.3100e-003**		**214.6080**

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041		6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.6733**	**1.6349**	**10.3082**	**3.5965**	**1.5041**	**5.1006**		**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

3.4 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0896	0.0589	0.6784	2.0800e-003	0.2236	1.7500e-003	0.2253	0.0593	1.6100e-003	0.0609		206.9139	206.9139	5.7000e-003		207.0563
Total	**0.0896**	**0.0589**	**0.6784**	**2.0800e-003**	**0.2236**	**1.7500e-003**	**0.2253**	**0.0593**	**1.6100e-003**	**0.0609**		**206.9139**	**206.9139**	**5.7000e-003**		**207.0563**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041	0.0000	6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.6733**	**1.6349**	**10.3082**	**3.5965**	**1.5041**	**5.1006**	**0.0000**	**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

3.4 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0896	0.0589	0.6784	2.0800e-003	0.2236	1.7500e-003	0.2253	0.0593	1.6100e-003	0.0609		206.9139	206.9139	5.7000e-003		207.0563
Total	**0.0896**	**0.0589**	**0.6784**	**2.0800e-003**	**0.2236**	**1.7500e-003**	**0.2253**	**0.0593**	**1.6100e-003**	**0.0609**		**206.9139**	**206.9139**	**5.7000e-003**		**207.0563**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4284	13.1673	3.8005	0.0354	0.9155	0.0256	0.9412	0.2636	0.0245	0.2881		3,789.0750	3,789.0750	0.2381		3,795.0283
Worker	3.5872	2.3593	27.1680	0.0832	8.9533	0.0701	9.0234	2.3745	0.0646	2.4390		8,286.9013	8,286.9013	0.2282		8,292.6058
Total	**4.0156**	**15.5266**	**30.9685**	**0.1186**	**9.8688**	**0.0957**	**9.9645**	**2.6381**	**0.0891**	**2.7271**		**12,075.9763**	**12,075.9763**	**0.4663**		**12,087.6341**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4284	13.1673	3.8005	0.0354	0.9155	0.0256	0.9412	0.2636	0.0245	0.2881		3,789.0750	3,789.0750	0.2381		3,795.0283
Worker	3.5872	2.3593	27.1680	0.0832	8.9533	0.0701	9.0234	2.3745	0.0646	2.4390		8,286.9013	8,286.9013	0.2282		8,292.6058
Total	**4.0156**	**15.5266**	**30.9685**	**0.1186**	**9.8688**	**0.0957**	**9.9645**	**2.6381**	**0.0891**	**2.7271**		**12,075.9763**	**12,075.9763**	**0.4663**		**12,087.6341**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3183	9.9726	3.3771	0.0343	0.9156	0.0122	0.9277	0.2636	0.0116	0.2752		3,671.4007	3,671.4007	0.2096		3,676.6417
Worker	3.3795	2.1338	24.9725	0.0801	8.9533	0.0681	9.0214	2.3745	0.0627	2.4372		7,983.7318	7,983.7318	0.2055		7,988.8683
Total	**3.6978**	**12.1065**	**28.3496**	**0.1144**	**9.8688**	**0.0803**	**9.9491**	**2.6381**	**0.0743**	**2.7124**		**11,655.1325**	**11,655.1325**	**0.4151**		**11,665.5099**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3183	9.9726	3.3771	0.0343	0.9156	0.0122	0.9277	0.2636	0.0116	0.2752		3,671.4007	3,671.4007	0.2096		3,676.6417
Worker	3.3795	2.1338	24.9725	0.0801	8.9533	0.0681	9.0214	2.3745	0.0627	2.4372		7,983.7318	7,983.7318	0.2055		7,988.8683
Total	**3.6978**	**12.1065**	**28.3496**	**0.1144**	**9.8688**	**0.0803**	**9.9491**	**2.6381**	**0.0743**	**2.7124**		**11,655.1325**	**11,655.1325**	**0.4151**		**11,665.5099**

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

3.6 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0633	0.0400	0.4677	1.5000e-003	0.1677	1.2800e-003	0.1689	0.0445	1.1700e-003	0.0456		149.5081	149.5081	3.8500e-003		149.6043
Total	**0.0633**	**0.0400**	**0.4677**	**1.5000e-003**	**0.1677**	**1.2800e-003**	**0.1689**	**0.0445**	**1.1700e-003**	**0.0456**		**149.5081**	**149.5081**	**3.8500e-003**		**149.6043**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

3.6 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0633	0.0400	0.4677	1.5000e-003	0.1677	1.2800e-003	0.1689	0.0445	1.1700e-003	0.0456		149.5081	149.5081	3.8500e-003		149.6043
Total	**0.0633**	**0.0400**	**0.4677**	**1.5000e-003**	**0.1677**	**1.2800e-003**	**0.1689**	**0.0445**	**1.1700e-003**	**0.0456**		**149.5081**	**149.5081**	**3.8500e-003**		**149.6043**

3.6 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9882**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**		**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

3.6 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0601	0.0364	0.4354	1.4500e-003	0.1677	1.2600e-003	0.1689	0.0445	1.1600e-003	0.0456		144.8706	144.8706	3.5300e-003		144.9587
Total	**0.0601**	**0.0364**	**0.4354**	**1.4500e-003**	**0.1677**	**1.2600e-003**	**0.1689**	**0.0445**	**1.1600e-003**	**0.0456**		**144.8706**	**144.8706**	**3.5300e-003**		**144.9587**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310	0.0000	2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9882**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**	**0.0000**	**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

3.6 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0601	0.0364	0.4354	1.4500e-003	0.1677	1.2600e-003	0.1689	0.0445	1.1600e-003	0.0456		144.8706	144.8706	3.5300e-003		144.9587
Total	**0.0601**	**0.0364**	**0.4354**	**1.4500e-003**	**0.1677**	**1.2600e-003**	**0.1689**	**0.0445**	**1.1600e-003**	**0.0456**		**144.8706**	**144.8706**	**3.5300e-003**		**144.9587**

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	236.4115					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**236.5923**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.7 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.6406	0.3886	4.6439	0.0155	1.7884	0.0134	1.8018	0.4743	0.0123	0.4866		1,545.2860	1,545.2860	0.0376		1,546.2262
Total	**0.6406**	**0.3886**	**4.6439**	**0.0155**	**1.7884**	**0.0134**	**1.8018**	**0.4743**	**0.0123**	**0.4866**		**1,545.2860**	**1,545.2860**	**0.0376**		**1,546.2262**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	236.4115					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**236.5923**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.7 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.6406	0.3886	4.6439	0.0155	1.7884	0.0134	1.8018	0.4743	0.0123	0.4866		1,545.2860	1,545.2860	0.0376		1,546.2262
Total	**0.6406**	**0.3886**	**4.6439**	**0.0155**	**1.7884**	**0.0134**	**1.8018**	**0.4743**	**0.0123**	**0.4866**		**1,545.2860**	**1,545.2860**	**0.0376**		**1,546.2262**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	9.5233	45.9914	110.0422	0.4681	45.9592	0.3373	46.2965	12.2950	0.3132	12.6083		47,917.8005	47,917.8005	2.1953		47,972.6839
Unmitigated	9.5233	45.9914	110.0422	0.4681	45.9592	0.3373	46.2965	12.2950	0.3132	12.6083		47,917.8005	47,917.8005	2.1953		47,972.6839

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	145.75	154.25	154.00	506,227	506,227
Apartments Mid Rise	4,026.75	3,773.25	4075.50	13,660,065	13,660,065
General Office Building	288.45	62.55	31.05	706,812	706,812
High Turnover (Sit Down Restaurant)	2,368.80	2,873.52	2817.72	3,413,937	3,413,937
Hotel	192.00	187.50	160.00	445,703	445,703
Quality Restaurant	501.12	511.92	461.20	707,488	707,488
Regional Shopping Center	528.08	601.44	357.84	1,112,221	1,112,221
Total	8,050.95	8,164.43	8,057.31	20,552,452	20,552,452

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
High Turnover (Sit Down	16.60	8.40	6.90	8.50	72.50	19.00	37	20	43
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4
Quality Restaurant	16.60	8.40	6.90	12.00	69.00	19.00	38	18	44
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Apartments Mid Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
General Office Building	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
High Turnover (Sit Down Restaurant)	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Hotel	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Quality Restaurant	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Regional Shopping Center	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387
NaturalGas Unmitigated	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	1119.16	0.0121	0.1031	0.0439	6.6000e-004		8.3400e-003	8.3400e-003		8.3400e-003	8.3400e-003		131.6662	131.6662	2.5200e-003	2.4100e-003	132.4486
Apartments Mid Rise	35784.3	0.3859	3.2978	1.4033	0.0211		0.2666	0.2666		0.2666	0.2666		4,209.9164	4,209.9164	0.0807	0.0772	4,234.9339
General Office Building	1283.42	0.0138	0.1258	0.1057	7.5000e-004		9.5600e-003	9.5600e-003		9.5600e-003	9.5600e-003		150.9911	150.9911	2.8900e-003	2.7700e-003	151.8884
High Turnover (Sit Down Restaurant)	22759.9	0.2455	2.2314	1.8743	0.0134		0.1696	0.1696		0.1696	0.1696		2,677.6342	2,677.6342	0.0513	0.0491	2,693.5460
Hotel	4769.72	0.0514	0.4676	0.3928	2.8100e-003		0.0355	0.0355		0.0355	0.0355		561.1436	561.1436	0.0108	0.0103	564.4782
Quality Restaurant	5057.75	0.0545	0.4959	0.4165	2.9800e-003		0.0377	0.0377		0.0377	0.0377		595.0298	595.0298	0.0114	0.0109	598.5658
Regional Shopping Center	251.616	2.7100e-003	0.0247	0.0207	1.5000e-004		1.8700e-003	1.8700e-003		1.8700e-003	1.8700e-003		29.6019	29.6019	5.7000e-004	5.4000e-004	29.7778
Total		**0.7660**	**6.7463**	**4.2573**	**0.0418**		**0.5292**	**0.5292**		**0.5292**	**0.5292**		**8,355.9832**	**8,355.9832**	**0.1602**	**0.1532**	**8,405.6387**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	1.11916	0.0121	0.1031	0.0439	6.6000e-004		8.3400e-003	8.3400e-003		8.3400e-003	8.3400e-003		131.6662	131.6662	2.5200e-003	2.4100e-003	132.4486
Apartments Mid Rise	35.7843	0.3859	3.2978	1.4033	0.0211		0.2666	0.2666		0.2666	0.2666		4,209.9164	4,209.9164	0.0807	0.0772	4,234.9339
General Office Building	1.28342	0.0138	0.1258	0.1057	7.5000e-004		9.5600e-003	9.5600e-003		9.5600e-003	9.5600e-003		150.9911	150.9911	2.8900e-003	2.7700e-003	151.8884
High Turnover (Sit Down Restaurant)	22.7599	0.2455	2.2314	1.8743	0.0134		0.1696	0.1696		0.1696	0.1696		2,677.6342	2,677.6342	0.0513	0.0491	2,693.5460
Hotel	4.76972	0.0514	0.4676	0.3928	2.8100e-003		0.0355	0.0355		0.0355	0.0355		561.1436	561.1436	0.0108	0.0103	564.4782
Quality Restaurant	5.05775	0.0545	0.4959	0.4165	2.9800e-003		0.0377	0.0377		0.0377	0.0377		595.0298	595.0298	0.0114	0.0109	598.5658
Regional Shopping Center	0.251616	2.7100e-003	0.0247	0.0207	1.5000e-004		1.8700e-003	1.8700e-003		1.8700e-003	1.8700e-003		29.6019	29.6019	5.7000e-004	5.4000e-004	29.7778
Total		**0.7660**	**6.7463**	**4.2573**	**0.0418**		**0.5292**	**0.5292**		**0.5292**	**0.5292**		**8,355.9832**	**8,355.9832**	**0.1602**	**0.1532**	**8,405.6387**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Unmitigated	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.2670					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	24.1085					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	1.6500	14.1000	6.0000	0.0900		1.1400	1.1400		1.1400	1.1400	0.0000	18,000.0000	18,000.0000	0.3450	0.3300	18,106.9650
Landscaping	2.4766	0.9496	82.4430	4.3600e-003		0.4574	0.4574		0.4574	0.4574		148.5950	148.5950	0.1424		152.1542
Total	**30.5020**	**15.0496**	**88.4430**	**0.0944**		**1.5974**	**1.5974**		**1.5974**	**1.5974**	**0.0000**	**18,148.5950**	**18,148.5950**	**0.4874**	**0.3300**	**18,259.1192**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.2670					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	24.1085					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	1.6500	14.1000	6.0000	0.0900		1.1400	1.1400		1.1400	1.1400	0.0000	18,000.0000	18,000.0000	0.3450	0.3300	18,106.9650
Landscaping	2.4766	0.9496	82.4430	4.3600e-003		0.4574	0.4574		0.4574	0.4574		148.5950	148.5950	0.1424		152.1542
Total	**30.5020**	**15.0496**	**88.4430**	**0.0944**		**1.5974**	**1.5974**		**1.5974**	**1.5974**	**0.0000**	**18,148.5950**	**18,148.5950**	**0.4874**	**0.3300**	**18,259.1192**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Village South Specific Plan (Proposed)

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	45.00	1000sqft	1.03	45,000.00	0
High Turnover (Sit Down Restaurant)	36.00	1000sqft	0.83	36,000.00	0
Hotel	50.00	Room	1.67	72,600.00	0
Quality Restaurant	8.00	1000sqft	0.18	8,000.00	0
Apartments Low Rise	25.00	Dwelling Unit	1.56	25,000.00	72
Apartments Mid Rise	975.00	Dwelling Unit	25.66	975,000.00	2789
Regional Shopping Center	56.00	1000sqft	1.29	56,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	9			**Operational Year**	2028
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Annual

Project Characteristics - Consistent with the DEIR's model.

Land Use - See SWAPE comment regarding residential and retail land uses.

Construction Phase - See SWAPE comment regarding individual construction phase lengths.

Demolition - Consistent with the DEIR's model. See SWAPE comment regarding demolition.

Vehicle Trips - Saturday trips consistent with the DEIR's model. See SWAPE comment regarding weekday and Sunday trips.

Woodstoves - Woodstoves and wood-burning fireplaces consistent with the DEIR's model. See SWAPE comment regarding gas fireplaces.

Energy Use -

Construction Off-road Equipment Mitigation - See SWAPE comment on construction-related mitigation.

Area Mitigation - See SWAPE comment regarding operational mitigation measures.

Water Mitigation - See SWAPE comment regarding operational mitigation measures.

Trips and VMT - Local hire provision

Table Name	Column Name	Default Value	New Value
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberWood	1.25	0.00
tblFireplaces	NumberWood	48.75	0.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblVehicleTrips	ST_TR	7.16	6.17
tblVehicleTrips	ST_TR	6.39	3.87
tblVehicleTrips	ST_TR	2.46	1.39
tblVehicleTrips	ST_TR	158.37	79.82

tblVehicleTrips	ST_TR	8.19	3.75
tblVehicleTrips	ST_TR	94.36	63.99
tblVehicleTrips	ST_TR	49.97	10.74
tblVehicleTrips	SU_TR	6.07	6.16
tblVehicleTrips	SU_TR	5.86	4.18
tblVehicleTrips	SU_TR	1.05	0.69
tblVehicleTrips	SU_TR	131.84	78.27
tblVehicleTrips	SU_TR	5.95	3.20
tblVehicleTrips	SU_TR	72.16	57.65
tblVehicleTrips	SU_TR	25.24	6.39
tblVehicleTrips	WD_TR	6.59	5.83
tblVehicleTrips	WD_TR	6.65	4.13
tblVehicleTrips	WD_TR	11.03	6.41
tblVehicleTrips	WD_TR	127.15	65.80
tblVehicleTrips	WD_TR	8.17	3.84
tblVehicleTrips	WD_TR	89.95	62.64
tblVehicleTrips	WD_TR	42.70	9.43
tblWoodstoves	NumberCatalytic	1.25	0.00
tblWoodstoves	NumberCatalytic	48.75	0.00
tblWoodstoves	NumberNoncatalytic	1.25	0.00
tblWoodstoves	NumberNoncatalytic	48.75	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.1704	1.8234	1.1577	2.3800e-003	0.4141	0.0817	0.4958	0.1788	0.0754	0.2542	0.0000	210.7654	210.7654	0.0600	0.0000	212.2661
2022	0.5865	4.0240	5.1546	0.0155	0.9509	0.1175	1.0683	0.2518	0.1103	0.3621	0.0000	1,418.6554	1,418.6554	0.1215	0.0000	1,421.6925
2023	0.5190	3.2850	4.7678	0.0147	0.8497	0.0971	0.9468	0.2283	0.0912	0.3195	0.0000	1,342.4412	1,342.4412	0.1115	0.0000	1,345.2291
2024	4.1592	0.1313	0.2557	5.0000e-004	0.0221	6.3900e-003	0.0285	5.8700e-003	5.9700e-003	0.0118	0.0000	44.6355	44.6355	7.8300e-003	0.0000	44.8311
Maximum	**4.1592**	**4.0240**	**5.1546**	**0.0155**	**0.9509**	**0.1175**	**1.0683**	**0.2518**	**0.1103**	**0.3621**	**0.0000**	**1,418.6554**	**1,418.6554**	**0.1215**	**0.0000**	**1,421.6925**

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.1704	1.8234	1.1577	2.3800e-003	0.4141	0.0817	0.4958	0.1788	0.0754	0.2542	0.0000	210.7651	210.7651	0.0600	0.0000	212.2658
2022	0.5865	4.0240	5.1546	0.0155	0.9509	0.1175	1.0683	0.2518	0.1103	0.3621	0.0000	1,418.6550	1,418.6550	0.1215	0.0000	1,421.6921
2023	0.5190	3.2850	4.7678	0.0147	0.8497	0.0971	0.9468	0.2283	0.0912	0.3195	0.0000	1,342.4409	1,342.4409	0.1115	0.0000	1,345.2287
2024	4.1592	0.1313	0.2557	5.0000e-004	0.0221	6.3900e-003	0.0285	5.8700e-003	5.9700e-003	0.0118	0.0000	44.6354	44.6354	7.8300e-003	0.0000	44.8311
Maximum	**4.1592**	**4.0240**	**5.1546**	**0.0155**	**0.9509**	**0.1175**	**1.0683**	**0.2518**	**0.1103**	**0.3621**	**0.0000**	**1,418.6550**	**1,418.6550**	**0.1215**	**0.0000**	**1,421.6921**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**9-1-2021**	**11-30-2021**	1.4091	1.4091
2	**12-1-2021**	**2-28-2022**	1.3329	1.3329
3	**3-1-2022**	**5-31-2022**	1.1499	1.1499
4	**6-1-2022**	**8-31-2022**	1.1457	1.1457
5	**9-1-2022**	**11-30-2022**	1.1415	1.1415
6	**12-1-2022**	**2-28-2023**	1.0278	1.0278
7	**3-1-2023**	**5-31-2023**	0.9868	0.9868
8	**6-1-2023**	**8-31-2023**	0.9831	0.9831

9	**9-1-2023**	**11-30-2023**	0.9798	0.9798
10	**12-1-2023**	**2-29-2024**	2.8757	2.8757
11	**3-1-2024**	**5-31-2024**	1.6188	1.6188
		Highest	2.8757	2.8757

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	5.1437	0.2950	10.3804	1.6700e-003		0.0714	0.0714		0.0714	0.0714	0.0000	220.9670	220.9670	0.0201	3.7400e-003	222.5835
Energy	0.1398	1.2312	0.7770	7.6200e-003		0.0966	0.0966		0.0966	0.0966	0.0000	3,896.0732	3,896.0732	0.1303	0.0468	3,913.2833
Mobile	1.5857	7.9962	19.1834	0.0821	7.7979	0.0580	7.8559	2.0895	0.0539	2.1434	0.0000	7,620.4986	7,620.4986	0.3407	0.0000	7,629.0162
Waste						0.0000	0.0000		0.0000	0.0000	207.8079	0.0000	207.8079	12.2811	0.0000	514.8354
Water						0.0000	0.0000		0.0000	0.0000	29.1632	556.6420	585.8052	3.0183	0.0755	683.7567
Total	**6.8692**	**9.5223**	**30.3407**	**0.0914**	**7.7979**	**0.2260**	**8.0240**	**2.0895**	**0.2219**	**2.3114**	**236.9712**	**12,294.1807**	**12,531.1519**	**15.7904**	**0.1260**	**12,963.4751**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	5.1437	0.2950	10.3804	1.6700e-003		0.0714	0.0714		0.0714	0.0714	0.0000	220.9670	220.9670	0.0201	3.7400e-003	222.5835
Energy	0.1398	1.2312	0.7770	7.6200e-003		0.0966	0.0966		0.0966	0.0966	0.0000	3,896.0732	3,896.0732	0.1303	0.0468	3,913.2833
Mobile	1.5857	7.9962	19.1834	0.0821	7.7979	0.0580	7.8559	2.0895	0.0539	2.1434	0.0000	7,620.4986	7,620.4986	0.3407	0.0000	7,629.0162
Waste						0.0000	0.0000		0.0000	0.0000	207.8079	0.0000	207.8079	12.2811	0.0000	514.8354
Water						0.0000	0.0000		0.0000	0.0000	29.1632	556.6420	585.8052	3.0183	0.0755	683.7567
Total	**6.8692**	**9.5223**	**30.3407**	**0.0914**	**7.7979**	**0.2260**	**8.0240**	**2.0895**	**0.2219**	**2.3114**	**236.9712**	**12,294.1807**	**12,531.1519**	**15.7904**	**0.1260**	**12,963.4751**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/1/2021	10/12/2021	5	30	
2	Site Preparation	Site Preparation	10/13/2021	11/9/2021	5	20	
3	Grading	Grading	11/10/2021	1/11/2022	5	45	
4	Building Construction	Building Construction	1/12/2022	12/12/2023	5	500	
5	Paving	Paving	12/13/2023	1/30/2024	5	35	
6	Architectural Coating	Architectural Coating	1/31/2024	3/19/2024	5	35	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 112.5

Acres of Paving: 0

Residential Indoor: 2,025,000; Residential Outdoor: 675,000; Non-Residential Indoor: 326,400; Non-Residential Outdoor: 108,800; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	458.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	801.00	143.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	160.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0496	0.0000	0.0496	7.5100e-003	0.0000	7.5100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0475	0.4716	0.3235	5.8000e-004		0.0233	0.0233		0.0216	0.0216	0.0000	51.0012	51.0012	0.0144	0.0000	51.3601
Total	**0.0475**	**0.4716**	**0.3235**	**5.8000e-004**	**0.0496**	**0.0233**	**0.0729**	**7.5100e-003**	**0.0216**	**0.0291**	**0.0000**	**51.0012**	**51.0012**	**0.0144**	**0.0000**	**51.3601**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.9300e-003	0.0634	0.0148	1.8000e-004	3.9400e-003	1.9000e-004	4.1300e-003	1.0800e-003	1.8000e-004	1.2600e-003	0.0000	17.4566	17.4566	1.2100e-003	0.0000	17.4869
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.2000e-004	5.3000e-004	6.0900e-003	2.0000e-005	1.6800e-003	1.0000e-005	1.6900e-003	4.5000e-004	1.0000e-005	4.6000e-004	0.0000	1.5281	1.5281	5.0000e-005	0.0000	1.5293
Total	**2.6500e-003**	**0.0639**	**0.0209**	**2.0000e-004**	**5.6200e-003**	**2.0000e-004**	**5.8200e-003**	**1.5300e-003**	**1.9000e-004**	**1.7200e-003**	**0.0000**	**18.9847**	**18.9847**	**1.2600e-003**	**0.0000**	**19.0161**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0496	0.0000	0.0496	7.5100e-003	0.0000	7.5100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0475	0.4716	0.3235	5.8000e-004		0.0233	0.0233		0.0216	0.0216	0.0000	51.0011	51.0011	0.0144	0.0000	51.3600
Total	**0.0475**	**0.4716**	**0.3235**	**5.8000e-004**	**0.0496**	**0.0233**	**0.0729**	**7.5100e-003**	**0.0216**	**0.0291**	**0.0000**	**51.0011**	**51.0011**	**0.0144**	**0.0000**	**51.3600**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.9300e-003	0.0634	0.0148	1.8000e-004	3.9400e-003	1.9000e-004	4.1300e-003	1.0800e-003	1.8000e-004	1.2600e-003	0.0000	17.4566	17.4566	1.2100e-003	0.0000	17.4869
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.2000e-004	5.3000e-004	6.0900e-003	2.0000e-005	1.6800e-003	1.0000e-005	1.6900e-003	4.5000e-004	1.0000e-005	4.6000e-004	0.0000	1.5281	1.5281	5.0000e-005	0.0000	1.5293
Total	**2.6500e-003**	**0.0639**	**0.0209**	**2.0000e-004**	**5.6200e-003**	**2.0000e-004**	**5.8200e-003**	**1.5300e-003**	**1.9000e-004**	**1.7200e-003**	**0.0000**	**18.9847**	**18.9847**	**1.2600e-003**	**0.0000**	**19.0161**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1807	0.0000	0.1807	0.0993	0.0000	0.0993	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0389	0.4050	0.2115	3.8000e-004		0.0204	0.0204		0.0188	0.0188	0.0000	33.4357	33.4357	0.0108	0.0000	33.7061
Total	**0.0389**	**0.4050**	**0.2115**	**3.8000e-004**	**0.1807**	**0.0204**	**0.2011**	**0.0993**	**0.0188**	**0.1181**	**0.0000**	**33.4357**	**33.4357**	**0.0108**	**0.0000**	**33.7061**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.8000e-004	4.3000e-004	4.8700e-003	1.0000e-005	1.3400e-003	1.0000e-005	1.3500e-003	3.6000e-004	1.0000e-005	3.7000e-004	0.0000	1.2225	1.2225	4.0000e-005	0.0000	1.2234
Total	**5.8000e-004**	**4.3000e-004**	**4.8700e-003**	**1.0000e-005**	**1.3400e-003**	**1.0000e-005**	**1.3500e-003**	**3.6000e-004**	**1.0000e-005**	**3.7000e-004**	**0.0000**	**1.2225**	**1.2225**	**4.0000e-005**	**0.0000**	**1.2234**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1807	0.0000	0.1807	0.0993	0.0000	0.0993	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0389	0.4050	0.2115	3.8000e-004		0.0204	0.0204		0.0188	0.0188	0.0000	33.4357	33.4357	0.0108	0.0000	33.7060
Total	**0.0389**	**0.4050**	**0.2115**	**3.8000e-004**	**0.1807**	**0.0204**	**0.2011**	**0.0993**	**0.0188**	**0.1181**	**0.0000**	**33.4357**	**33.4357**	**0.0108**	**0.0000**	**33.7060**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.8000e-004	4.3000e-004	4.8700e-003	1.0000e-005	1.3400e-003	1.0000e-005	1.3500e-003	3.6000e-004	1.0000e-005	3.7000e-004	0.0000	1.2225	1.2225	4.0000e-005	0.0000	1.2234
Total	**5.8000e-004**	**4.3000e-004**	**4.8700e-003**	**1.0000e-005**	**1.3400e-003**	**1.0000e-005**	**1.3500e-003**	**3.6000e-004**	**1.0000e-005**	**3.7000e-004**	**0.0000**	**1.2225**	**1.2225**	**4.0000e-005**	**0.0000**	**1.2234**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1741	0.0000	0.1741	0.0693	0.0000	0.0693	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0796	0.8816	0.5867	1.1800e-003		0.0377	0.0377		0.0347	0.0347	0.0000	103.5405	103.5405	0.0335	0.0000	104.3776
Total	**0.0796**	**0.8816**	**0.5867**	**1.1800e-003**	**0.1741**	**0.0377**	**0.2118**	**0.0693**	**0.0347**	**0.1040**	**0.0000**	**103.5405**	**103.5405**	**0.0335**	**0.0000**	**104.3776**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2200e-003	9.0000e-004	0.0103	3.0000e-005	2.8300e-003	2.0000e-005	2.8600e-003	7.5000e-004	2.0000e-005	7.8000e-004	0.0000	2.5808	2.5808	8.0000e-005	0.0000	2.5828
Total	**1.2200e-003**	**9.0000e-004**	**0.0103**	**3.0000e-005**	**2.8300e-003**	**2.0000e-005**	**2.8600e-003**	**7.5000e-004**	**2.0000e-005**	**7.8000e-004**	**0.0000**	**2.5808**	**2.5808**	**8.0000e-005**	**0.0000**	**2.5828**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1741	0.0000	0.1741	0.0693	0.0000	0.0693	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0796	0.8816	0.5867	1.1800e-003		0.0377	0.0377		0.0347	0.0347	0.0000	103.5403	103.5403	0.0335	0.0000	104.3775
Total	**0.0796**	**0.8816**	**0.5867**	**1.1800e-003**	**0.1741**	**0.0377**	**0.2118**	**0.0693**	**0.0347**	**0.1040**	**0.0000**	**103.5403**	**103.5403**	**0.0335**	**0.0000**	**104.3775**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2200e-003	9.0000e-004	0.0103	3.0000e-005	2.8300e-003	2.0000e-005	2.8600e-003	7.5000e-004	2.0000e-005	7.8000e-004	0.0000	2.5808	2.5808	8.0000e-005	0.0000	2.5828
Total	**1.2200e-003**	**9.0000e-004**	**0.0103**	**3.0000e-005**	**2.8300e-003**	**2.0000e-005**	**2.8600e-003**	**7.5000e-004**	**2.0000e-005**	**7.8000e-004**	**0.0000**	**2.5808**	**2.5808**	**8.0000e-005**	**0.0000**	**2.5828**

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0807	0.0000	0.0807	0.0180	0.0000	0.0180	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0127	0.1360	0.1017	2.2000e-004		5.7200e-003	5.7200e-003		5.2600e-003	5.2600e-003	0.0000	19.0871	19.0871	6.1700e-003	0.0000	19.2414
Total	**0.0127**	**0.1360**	**0.1017**	**2.2000e-004**	**0.0807**	**5.7200e-003**	**0.0865**	**0.0180**	**5.2600e-003**	**0.0233**	**0.0000**	**19.0871**	**19.0871**	**6.1700e-003**	**0.0000**	**19.2414**

3.4 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1000e-004	1.5000e-004	1.7400e-003	1.0000e-005	5.2000e-004	0.0000	5.3000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.4587	0.4587	1.0000e-005	0.0000	0.4590
Total	**2.1000e-004**	**1.5000e-004**	**1.7400e-003**	**1.0000e-005**	**5.2000e-004**	**0.0000**	**5.3000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**0.4587**	**0.4587**	**1.0000e-005**	**0.0000**	**0.4590**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0807	0.0000	0.0807	0.0180	0.0000	0.0180	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0127	0.1360	0.1017	2.2000e-004		5.7200e-003	5.7200e-003		5.2600e-003	5.2600e-003	0.0000	19.0871	19.0871	6.1700e-003	0.0000	19.2414
Total	**0.0127**	**0.1360**	**0.1017**	**2.2000e-004**	**0.0807**	**5.7200e-003**	**0.0865**	**0.0180**	**5.2600e-003**	**0.0233**	**0.0000**	**19.0871**	**19.0871**	**6.1700e-003**	**0.0000**	**19.2414**

3.4 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1000e-004	1.5000e-004	1.7400e-003	1.0000e-005	5.2000e-004	0.0000	5.3000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.4587	0.4587	1.0000e-005	0.0000	0.4590
Total	**2.1000e-004**	**1.5000e-004**	**1.7400e-003**	**1.0000e-005**	**5.2000e-004**	**0.0000**	**5.3000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**0.4587**	**0.4587**	**1.0000e-005**	**0.0000**	**0.4590**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2158	1.9754	2.0700	3.4100e-003		0.1023	0.1023		0.0963	0.0963	0.0000	293.1324	293.1324	0.0702	0.0000	294.8881
Total	**0.2158**	**1.9754**	**2.0700**	**3.4100e-003**		**0.1023**	**0.1023**		**0.0963**	**0.0963**	**0.0000**	**293.1324**	**293.1324**	**0.0702**	**0.0000**	**294.8881**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0527	1.6961	0.4580	4.5500e-003	0.1140	3.1800e-003	0.1171	0.0329	3.0400e-003	0.0359	0.0000	441.9835	441.9835	0.0264	0.0000	442.6435
Worker	0.3051	0.2164	2.5233	7.3500e-003	0.7557	6.2300e-003	0.7619	0.2007	5.7400e-003	0.2065	0.0000	663.9936	663.9936	0.0187	0.0000	664.4604
Total	**0.3578**	**1.9125**	**2.9812**	**0.0119**	**0.8696**	**9.4100e-003**	**0.8790**	**0.2336**	**8.7800e-003**	**0.2424**	**0.0000**	**1,105.9771**	**1,105.9771**	**0.0451**	**0.0000**	**1,107.1039**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2158	1.9754	2.0700	3.4100e-003		0.1023	0.1023		0.0963	0.0963	0.0000	293.1321	293.1321	0.0702	0.0000	294.8877
Total	**0.2158**	**1.9754**	**2.0700**	**3.4100e-003**		**0.1023**	**0.1023**		**0.0963**	**0.0963**	**0.0000**	**293.1321**	**293.1321**	**0.0702**	**0.0000**	**294.8877**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0527	1.6961	0.4580	4.5500e-003	0.1140	3.1800e-003	0.1171	0.0329	3.0400e-003	0.0359	0.0000	441.9835	441.9835	0.0264	0.0000	442.6435
Worker	0.3051	0.2164	2.5233	7.3500e-003	0.7557	6.2300e-003	0.7619	0.2007	5.7400e-003	0.2065	0.0000	663.9936	663.9936	0.0187	0.0000	664.4604
Total	**0.3578**	**1.9125**	**2.9812**	**0.0119**	**0.8696**	**9.4100e-003**	**0.8790**	**0.2336**	**8.7800e-003**	**0.2424**	**0.0000**	**1,105.9771**	**1,105.9771**	**0.0451**	**0.0000**	**1,107.1039**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1942	1.7765	2.0061	3.3300e-003		0.0864	0.0864		0.0813	0.0813	0.0000	286.2789	286.2789	0.0681	0.0000	287.9814
Total	**0.1942**	**1.7765**	**2.0061**	**3.3300e-003**		**0.0864**	**0.0864**		**0.0813**	**0.0813**	**0.0000**	**286.2789**	**286.2789**	**0.0681**	**0.0000**	**287.9814**

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0382	1.2511	0.4011	4.3000e-003	0.1113	1.4600e-003	0.1127	0.0321	1.4000e-003	0.0335	0.0000	417.9930	417.9930	0.0228	0.0000	418.5624
Worker	0.2795	0.1910	2.2635	6.9100e-003	0.7377	5.9100e-003	0.7436	0.1960	5.4500e-003	0.2014	0.0000	624.5363	624.5363	0.0164	0.0000	624.9466
Total	**0.3177**	**1.4420**	**2.6646**	**0.0112**	**0.8490**	**7.3700e-003**	**0.8564**	**0.2281**	**6.8500e-003**	**0.2349**	**0.0000**	**1,042.5294**	**1,042.5294**	**0.0392**	**0.0000**	**1,043.5090**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1942	1.7765	2.0061	3.3300e-003		0.0864	0.0864		0.0813	0.0813	0.0000	286.2785	286.2785	0.0681	0.0000	287.9811
Total	**0.1942**	**1.7765**	**2.0061**	**3.3300e-003**		**0.0864**	**0.0864**		**0.0813**	**0.0813**	**0.0000**	**286.2785**	**286.2785**	**0.0681**	**0.0000**	**287.9811**

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0382	1.2511	0.4011	4.3000e-003	0.1113	1.4600e-003	0.1127	0.0321	1.4000e-003	0.0335	0.0000	417.9930	417.9930	0.0228	0.0000	418.5624
Worker	0.2795	0.1910	2.2635	6.9100e-003	0.7377	5.9100e-003	0.7436	0.1960	5.4500e-003	0.2014	0.0000	624.5363	624.5363	0.0164	0.0000	624.9466
Total	**0.3177**	**1.4420**	**2.6646**	**0.0112**	**0.8490**	**7.3700e-003**	**0.8564**	**0.2281**	**6.8500e-003**	**0.2349**	**0.0000**	**1,042.5294**	**1,042.5294**	**0.0392**	**0.0000**	**1,043.5090**

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.7100e-003	0.0663	0.0948	1.5000e-004		3.3200e-003	3.3200e-003		3.0500e-003	3.0500e-003	0.0000	13.0175	13.0175	4.2100e-003	0.0000	13.1227
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.7100e-003**	**0.0663**	**0.0948**	**1.5000e-004**		**3.3200e-003**	**3.3200e-003**		**3.0500e-003**	**3.0500e-003**	**0.0000**	**13.0175**	**13.0175**	**4.2100e-003**	**0.0000**	**13.1227**

3.6 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	1.9000e-004	2.2300e-003	1.0000e-005	7.3000e-004	1.0000e-005	7.3000e-004	1.9000e-004	1.0000e-005	2.0000e-004	0.0000	0.6156	0.6156	2.0000e-005	0.0000	0.6160
Total	**2.8000e-004**	**1.9000e-004**	**2.2300e-003**	**1.0000e-005**	**7.3000e-004**	**1.0000e-005**	**7.3000e-004**	**1.9000e-004**	**1.0000e-005**	**2.0000e-004**	**0.0000**	**0.6156**	**0.6156**	**2.0000e-005**	**0.0000**	**0.6160**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.7100e-003	0.0663	0.0948	1.5000e-004		3.3200e-003	3.3200e-003		3.0500e-003	3.0500e-003	0.0000	13.0175	13.0175	4.2100e-003	0.0000	13.1227
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.7100e-003**	**0.0663**	**0.0948**	**1.5000e-004**		**3.3200e-003**	**3.3200e-003**		**3.0500e-003**	**3.0500e-003**	**0.0000**	**13.0175**	**13.0175**	**4.2100e-003**	**0.0000**	**13.1227**

3.6 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	1.9000e-004	2.2300e-003	1.0000e-005	7.3000e-004	1.0000e-005	7.3000e-004	1.9000e-004	1.0000e-005	2.0000e-004	0.0000	0.6156	0.6156	2.0000e-005	0.0000	0.6160
Total	**2.8000e-004**	**1.9000e-004**	**2.2300e-003**	**1.0000e-005**	**7.3000e-004**	**1.0000e-005**	**7.3000e-004**	**1.9000e-004**	**1.0000e-005**	**2.0000e-004**	**0.0000**	**0.6156**	**0.6156**	**2.0000e-005**	**0.0000**	**0.6160**

3.6 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0109	0.1048	0.1609	2.5000e-004		5.1500e-003	5.1500e-003		4.7400e-003	4.7400e-003	0.0000	22.0292	22.0292	7.1200e-003	0.0000	22.2073
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0109**	**0.1048**	**0.1609**	**2.5000e-004**		**5.1500e-003**	**5.1500e-003**		**4.7400e-003**	**4.7400e-003**	**0.0000**	**22.0292**	**22.0292**	**7.1200e-003**	**0.0000**	**22.2073**

3.6 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	2.9000e-004	3.5100e-003	1.0000e-005	1.2300e-003	1.0000e-005	1.2400e-003	3.3000e-004	1.0000e-005	3.4000e-004	0.0000	1.0094	1.0094	3.0000e-005	0.0000	1.0100
Total	**4.4000e-004**	**2.9000e-004**	**3.5100e-003**	**1.0000e-005**	**1.2300e-003**	**1.0000e-005**	**1.2400e-003**	**3.3000e-004**	**1.0000e-005**	**3.4000e-004**	**0.0000**	**1.0094**	**1.0094**	**3.0000e-005**	**0.0000**	**1.0100**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0109	0.1048	0.1609	2.5000e-004		5.1500e-003	5.1500e-003		4.7400e-003	4.7400e-003	0.0000	22.0292	22.0292	7.1200e-003	0.0000	22.2073
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0109**	**0.1048**	**0.1609**	**2.5000e-004**		**5.1500e-003**	**5.1500e-003**		**4.7400e-003**	**4.7400e-003**	**0.0000**	**22.0292**	**22.0292**	**7.1200e-003**	**0.0000**	**22.2073**

3.6 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	2.9000e-004	3.5100e-003	1.0000e-005	1.2300e-003	1.0000e-005	1.2400e-003	3.3000e-004	1.0000e-005	3.4000e-004	0.0000	1.0094	1.0094	3.0000e-005	0.0000	1.0100
Total	**4.4000e-004**	**2.9000e-004**	**3.5100e-003**	**1.0000e-005**	**1.2300e-003**	**1.0000e-005**	**1.2400e-003**	**3.3000e-004**	**1.0000e-005**	**3.4000e-004**	**0.0000**	**1.0094**	**1.0094**	**3.0000e-005**	**0.0000**	**1.0100**

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.1372					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.1600e-003	0.0213	0.0317	5.0000e-005		1.0700e-003	1.0700e-003		1.0700e-003	1.0700e-003	0.0000	4.4682	4.4682	2.5000e-004	0.0000	4.4745
Total	**4.1404**	**0.0213**	**0.0317**	**5.0000e-005**		**1.0700e-003**	**1.0700e-003**		**1.0700e-003**	**1.0700e-003**	**0.0000**	**4.4682**	**4.4682**	**2.5000e-004**	**0.0000**	**4.4745**

3.7 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.4800e-003	4.9300e-003	0.0596	1.9000e-004	0.0209	1.6000e-004	0.0211	5.5500e-003	1.5000e-004	5.7000e-003	0.0000	17.1287	17.1287	4.3000e-004	0.0000	17.1394
Total	**7.4800e-003**	**4.9300e-003**	**0.0596**	**1.9000e-004**	**0.0209**	**1.6000e-004**	**0.0211**	**5.5500e-003**	**1.5000e-004**	**5.7000e-003**	**0.0000**	**17.1287**	**17.1287**	**4.3000e-004**	**0.0000**	**17.1394**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.1372					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.1600e-003	0.0213	0.0317	5.0000e-005		1.0700e-003	1.0700e-003		1.0700e-003	1.0700e-003	0.0000	4.4682	4.4682	2.5000e-004	0.0000	4.4745
Total	**4.1404**	**0.0213**	**0.0317**	**5.0000e-005**		**1.0700e-003**	**1.0700e-003**		**1.0700e-003**	**1.0700e-003**	**0.0000**	**4.4682**	**4.4682**	**2.5000e-004**	**0.0000**	**4.4745**

3.7 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.4800e-003	4.9300e-003	0.0596	1.9000e-004	0.0209	1.6000e-004	0.0211	5.5500e-003	1.5000e-004	5.7000e-003	0.0000	17.1287	17.1287	4.3000e-004	0.0000	17.1394
Total	**7.4800e-003**	**4.9300e-003**	**0.0596**	**1.9000e-004**	**0.0209**	**1.6000e-004**	**0.0211**	**5.5500e-003**	**1.5000e-004**	**5.7000e-003**	**0.0000**	**17.1287**	**17.1287**	**4.3000e-004**	**0.0000**	**17.1394**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.5857	7.9962	19.1834	0.0821	7.7979	0.0580	7.8559	2.0895	0.0539	2.1434	0.0000	7,620.4986	7,620.4986	0.3407	0.0000	7,629.0162
Unmitigated	1.5857	7.9962	19.1834	0.0821	7.7979	0.0580	7.8559	2.0895	0.0539	2.1434	0.0000	7,620.4986	7,620.4986	0.3407	0.0000	7,629.0162

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	145.75	154.25	154.00	506,227	506,227
Apartments Mid Rise	4,026.75	3,773.25	4075.50	13,660,065	13,660,065
General Office Building	288.45	62.55	31.05	706,812	706,812
High Turnover (Sit Down Restaurant)	2,368.80	2,873.52	2817.72	3,413,937	3,413,937
Hotel	192.00	187.50	160.00	445,703	445,703
Quality Restaurant	501.12	511.92	461.20	707,488	707,488
Regional Shopping Center	528.08	601.44	357.84	1,112,221	1,112,221
Total	8,050.95	8,164.43	8,057.31	20,552,452	20,552,452

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
High Turnover (Sit Down	16.60	8.40	6.90	8.50	72.50	19.00	37	20	43
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4
Quality Restaurant	16.60	8.40	6.90	12.00	69.00	19.00	38	18	44
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Apartments Mid Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
General Office Building	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
High Turnover (Sit Down Restaurant)	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Hotel	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Quality Restaurant	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Regional Shopping Center	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2,512.6465	2,512.6465	0.1037	0.0215	2,521.6356
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2,512.6465	2,512.6465	0.1037	0.0215	2,521.6356
NaturalGas Mitigated	0.1398	1.2312	0.7770	7.6200e-003		0.0966	0.0966		0.0966	0.0966	0.0000	1,383.4267	1,383.4267	0.0265	0.0254	1,391.6478
NaturalGas Unmitigated	0.1398	1.2312	0.7770	7.6200e-003		0.0966	0.0966		0.0966	0.0966	0.0000	1,383.4267	1,383.4267	0.0265	0.0254	1,391.6478

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	408494	2.2000e-003	0.0188	8.0100e-003	1.2000e-004		1.5200e-003	1.5200e-003		1.5200e-003	1.5200e-003	0.0000	21.7988	21.7988	4.2000e-004	4.0000e-004	21.9284
Apartments Mid Rise	1.30613e+007	0.0704	0.6018	0.2561	3.8400e-003		0.0487	0.0487		0.0487	0.0487	0.0000	696.9989	696.9989	0.0134	0.0128	701.1408
General Office Building	468450	2.5300e-003	0.0230	0.0193	1.4000e-004		1.7500e-003	1.7500e-003		1.7500e-003	1.7500e-003	0.0000	24.9983	24.9983	4.8000e-004	4.6000e-004	25.1468
High Turnover (Sit Down Restaurant)	8.30736e+006	0.0448	0.4072	0.3421	2.4400e-003		0.0310	0.0310		0.0310	0.0310	0.0000	443.3124	443.3124	8.5000e-003	8.1300e-003	445.9468
Hotel	1.74095e+006	9.3900e-003	0.0853	0.0717	5.1000e-004		6.4900e-003	6.4900e-003		6.4900e-003	6.4900e-003	0.0000	92.9036	92.9036	1.7800e-003	1.7000e-003	93.4557
Quality Restaurant	1.84608e+006	9.9500e-003	0.0905	0.0760	5.4000e-004		6.8800e-003	6.8800e-003		6.8800e-003	6.8800e-003	0.0000	98.5139	98.5139	1.8900e-003	1.8100e-003	99.0993
Regional Shopping Center	91840	5.0000e-004	4.5000e-003	3.7800e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	4.9009	4.9009	9.0000e-005	9.0000e-005	4.9301
Total		**0.1398**	**1.2312**	**0.7770**	**7.6200e-003**		**0.0966**	**0.0966**		**0.0966**	**0.0966**	**0.0000**	**1,383.4268**	**1,383.4268**	**0.0265**	**0.0254**	**1,391.6478**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	408494	2.2000e-003	0.0188	8.0100e-003	1.2000e-004		1.5200e-003	1.5200e-003		1.5200e-003	1.5200e-003	0.0000	21.7988	21.7988	4.2000e-004	4.0000e-004	21.9284
Apartments Mid Rise	1.30613e+007	0.0704	0.6018	0.2561	3.8400e-003		0.0487	0.0487		0.0487	0.0487	0.0000	696.9989	696.9989	0.0134	0.0128	701.1408
General Office Building	468450	2.5300e-003	0.0230	0.0193	1.4000e-004		1.7500e-003	1.7500e-003		1.7500e-003	1.7500e-003	0.0000	24.9983	24.9983	4.8000e-004	4.6000e-004	25.1468
High Turnover (Sit Down Restaurant)	8.30736e+006	0.0448	0.4072	0.3421	2.4400e-003		0.0310	0.0310		0.0310	0.0310	0.0000	443.3124	443.3124	8.5000e-003	8.1300e-003	445.9468
Hotel	1.74095e+006	9.3900e-003	0.0853	0.0717	5.1000e-004		6.4900e-003	6.4900e-003		6.4900e-003	6.4900e-003	0.0000	92.9036	92.9036	1.7800e-003	1.7000e-003	93.4557
Quality Restaurant	1.84608e+006	9.9500e-003	0.0905	0.0760	5.4000e-004		6.8800e-003	6.8800e-003		6.8800e-003	6.8800e-003	0.0000	98.5139	98.5139	1.8900e-003	1.8100e-003	99.0993
Regional Shopping Center	91840	5.0000e-004	4.5000e-003	3.7800e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	4.9009	4.9009	9.0000e-005	9.0000e-005	4.9301
Total		**0.1398**	**1.2312**	**0.7770**	**7.6200e-003**		**0.0966**	**0.0966**		**0.0966**	**0.0966**	**0.0000**	**1,383.4268**	**1,383.4268**	**0.0265**	**0.0254**	**1,391.6478**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	106010	33.7770	1.3900e-003	2.9000e-004	33.8978
Apartments Mid Rise	3.94697e+006	1,257.5879	0.0519	0.0107	1,262.0869
General Office Building	584550	186.2502	7.6900e-003	1.5900e-003	186.9165
High Turnover (Sit Down Restaurant)	1.58904e+006	506.3022	0.0209	4.3200e-003	508.1135
Hotel	550308	175.3399	7.2400e-003	1.5000e-003	175.9672
Quality Restaurant	353120	112.5116	4.6500e-003	9.6000e-004	112.9141
Regional Shopping Center	756000	240.8778	9.9400e-003	2.0600e-003	241.7395
Total		**2,512.6465**	**0.1037**	**0.0215**	**2,521.6356**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	106010	33.7770	1.3900e-003	2.9000e-004	33.8978
Apartments Mid Rise	3.94697e+006	1,257.5879	0.0519	0.0107	1,262.0869
General Office Building	584550	186.2502	7.6900e-003	1.5900e-003	186.9165
High Turnover (Sit Down Restaurant)	1.58904e+006	506.3022	0.0209	4.3200e-003	508.1135
Hotel	550308	175.3399	7.2400e-003	1.5000e-003	175.9672
Quality Restaurant	353120	112.5116	4.6500e-003	9.6000e-004	112.9141
Regional Shopping Center	756000	240.8778	9.9400e-003	2.0600e-003	241.7395
Total		**2,512.6465**	**0.1037**	**0.0215**	**2,521.6356**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	5.1437	0.2950	10.3804	1.6700e-003		0.0714	0.0714		0.0714	0.0714	0.0000	220.9670	220.9670	0.0201	3.7400e-003	222.5835
Unmitigated	5.1437	0.2950	10.3804	1.6700e-003		0.0714	0.0714		0.0714	0.0714	0.0000	220.9670	220.9670	0.0201	3.7400e-003	222.5835

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4137					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.3998					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0206	0.1763	0.0750	1.1200e-003		0.0143	0.0143		0.0143	0.0143	0.0000	204.1166	204.1166	3.9100e-003	3.7400e-003	205.3295
Landscaping	0.3096	0.1187	10.3054	5.4000e-004		0.0572	0.0572		0.0572	0.0572	0.0000	16.8504	16.8504	0.0161	0.0000	17.2540
Total	**5.1437**	**0.2950**	**10.3804**	**1.6600e-003**		**0.0714**	**0.0714**		**0.0714**	**0.0714**	**0.0000**	**220.9670**	**220.9670**	**0.0201**	**3.7400e-003**	**222.5835**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4137					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.3998					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0206	0.1763	0.0750	1.1200e-003		0.0143	0.0143		0.0143	0.0143	0.0000	204.1166	204.1166	3.9100e-003	3.7400e-003	205.3295
Landscaping	0.3096	0.1187	10.3054	5.4000e-004		0.0572	0.0572		0.0572	0.0572	0.0000	16.8504	16.8504	0.0161	0.0000	17.2540
Total	**5.1437**	**0.2950**	**10.3804**	**1.6600e-003**		**0.0714**	**0.0714**		**0.0714**	**0.0714**	**0.0000**	**220.9670**	**220.9670**	**0.0201**	**3.7400e-003**	**222.5835**

7.0 Water Detail

7.1 Mitigation Measures Water

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	585.8052	3.0183	0.0755	683.7567
Unmitigated	585.8052	3.0183	0.0755	683.7567

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	1.62885 / 1.02688	10.9095	0.0535	1.3400e-003	12.6471
Apartments Mid Rise	63.5252 / 40.0485	425.4719	2.0867	0.0523	493.2363
General Office Building	7.99802 / 4.90201	53.0719	0.2627	6.5900e-003	61.6019
High Turnover (Sit Down Restaurant)	10.9272 / 0.697482	51.2702	0.3580	8.8200e-003	62.8482
Hotel	1.26834 / 0.140927	6.1633	0.0416	1.0300e-003	7.5079
Quality Restaurant	2.42827 / 0.154996	11.3934	0.0796	1.9600e-003	13.9663
Regional Shopping Center	4.14806 / 2.54236	27.5250	0.1363	3.4200e-003	31.9490
Total		**585.8052**	**3.0183**	**0.0755**	**683.7567**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	1.62885 / 1.02688	10.9095	0.0535	1.3400e-003	12.6471
Apartments Mid Rise	63.5252 / 40.0485	425.4719	2.0867	0.0523	493.2363
General Office Building	7.99802 / 4.90201	53.0719	0.2627	6.5900e-003	61.6019
High Turnover (Sit Down Restaurant)	10.9272 / 0.697482	51.2702	0.3580	8.8200e-003	62.8482
Hotel	1.26834 / 0.140927	6.1633	0.0416	1.0300e-003	7.5079
Quality Restaurant	2.42827 / 0.154996	11.3934	0.0796	1.9600e-003	13.9663
Regional Shopping Center	4.14806 / 2.54236	27.5250	0.1363	3.4200e-003	31.9490
Total		**585.8052**	**3.0183**	**0.0755**	**683.7567**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	207.8079	12.2811	0.0000	514.8354
Unmitigated	207.8079	12.2811	0.0000	514.8354

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	11.5	2.3344	0.1380	0.0000	5.7834
Apartments Mid Rise	448.5	91.0415	5.3804	0.0000	225.5513
General Office Building	41.85	8.4952	0.5021	0.0000	21.0464
High Turnover (Sit Down Restaurant)	428.4	86.9613	5.1393	0.0000	215.4430
Hotel	27.38	5.5579	0.3285	0.0000	13.7694
Quality Restaurant	7.3	1.4818	0.0876	0.0000	3.6712
Regional Shopping Center	58.8	11.9359	0.7054	0.0000	29.5706
Total		**207.8079**	**12.2811**	**0.0000**	**514.8354**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	11.5	2.3344	0.1380	0.0000	5.7834
Apartments Mid Rise	448.5	91.0415	5.3804	0.0000	225.5513
General Office Building	41.85	8.4952	0.5021	0.0000	21.0464
High Turnover (Sit Down Restaurant)	428.4	86.9613	5.1393	0.0000	215.4430
Hotel	27.38	5.5579	0.3285	0.0000	13.7694
Quality Restaurant	7.3	1.4818	0.0876	0.0000	3.6712
Regional Shopping Center	58.8	11.9359	0.7054	0.0000	29.5706
Total		**207.8079**	**12.2811**	**0.0000**	**514.8354**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Village South Specific Plan (Proposed)

Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	45.00	1000sqft	1.03	45,000.00	0
High Turnover (Sit Down Restaurant)	36.00	1000sqft	0.83	36,000.00	0
Hotel	50.00	Room	1.67	72,600.00	0
Quality Restaurant	8.00	1000sqft	0.18	8,000.00	0
Apartments Low Rise	25.00	Dwelling Unit	1.56	25,000.00	72
Apartments Mid Rise	975.00	Dwelling Unit	25.66	975,000.00	2789
Regional Shopping Center	56.00	1000sqft	1.29	56,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	9			**Operational Year**	2028
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Summer

Project Characteristics - Consistent with the DEIR's model.

Land Use - See SWAPE comment regarding residential and retail land uses.

Construction Phase - See SWAPE comment regarding individual construction phase lengths.

Demolition - Consistent with the DEIR's model. See SWAPE comment regarding demolition.

Vehicle Trips - Saturday trips consistent with the DEIR's model. See SWAPE comment regarding weekday and Sunday trips.

Woodstoves - Woodstoves and wood-burning fireplaces consistent with the DEIR's model. See SWAPE comment regarding gas fireplaces.

Energy Use -

Construction Off-road Equipment Mitigation - See SWAPE comment on construction-related mitigation.

Area Mitigation - See SWAPE comment regarding operational mitigation measures.

Water Mitigation - See SWAPE comment regarding operational mitigation measures.

Trips and VMT - Local hire provision

Table Name	Column Name	Default Value	New Value
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberWood	1.25	0.00
tblFireplaces	NumberWood	48.75	0.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblVehicleTrips	ST_TR	7.16	6.17
tblVehicleTrips	ST_TR	6.39	3.87
tblVehicleTrips	ST_TR	2.46	1.39
tblVehicleTrips	ST_TR	158.37	79.82

tblVehicleTrips	ST_TR	8.19	3.75
tblVehicleTrips	ST_TR	94.36	63.99
tblVehicleTrips	ST_TR	49.97	10.74
tblVehicleTrips	SU_TR	6.07	6.16
tblVehicleTrips	SU_TR	5.86	4.18
tblVehicleTrips	SU_TR	1.05	0.69
tblVehicleTrips	SU_TR	131.84	78.27
tblVehicleTrips	SU_TR	5.95	3.20
tblVehicleTrips	SU_TR	72.16	57.65
tblVehicleTrips	SU_TR	25.24	6.39
tblVehicleTrips	WD_TR	6.59	5.83
tblVehicleTrips	WD_TR	6.65	4.13
tblVehicleTrips	WD_TR	11.03	6.41
tblVehicleTrips	WD_TR	127.15	65.80
tblVehicleTrips	WD_TR	8.17	3.84
tblVehicleTrips	WD_TR	89.95	62.64
tblVehicleTrips	WD_TR	42.70	9.43
tblWoodstoves	NumberCatalytic	1.25	0.00
tblWoodstoves	NumberCatalytic	48.75	0.00
tblWoodstoves	NumberNoncatalytic	1.25	0.00
tblWoodstoves	NumberNoncatalytic	48.75	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.2561	46.4415	31.4494	0.0636	18.2032	2.0456	20.2488	9.9670	1.8820	11.8490	0.0000	6,163.4166	6,163.4166	1.9475	0.0000	6,212.1039
2022	4.5441	38.8811	40.8776	0.1240	8.8255	1.6361	10.4616	3.6369	1.5052	5.1421	0.0000	12,493.4403	12,493.4403	1.9485	0.0000	12,518.5707
2023	4.1534	25.7658	38.7457	0.1206	7.0088	0.7592	7.7679	1.8799	0.7136	2.5935	0.0000	12,150.4890	12,150.4890	0.9589	0.0000	12,174.4615
2024	237.0219	9.5478	14.9642	0.0239	1.2171	0.4694	1.2875	0.3229	0.4319	0.4621	0.0000	2,313.1808	2,313.1808	0.7166	0.0000	2,331.0956
Maximum	**237.0219**	**46.4415**	**40.8776**	**0.1240**	**18.2032**	**2.0456**	**20.2488**	**9.9670**	**1.8820**	**11.8490**	**0.0000**	**12,493.4403**	**12,493.4403**	**1.9485**	**0.0000**	**12,518.5707**

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.2561	46.4415	31.4494	0.0636	18.2032	2.0456	20.2488	9.9670	1.8820	11.8490	0.0000	6,163.4166	6,163.4166	1.9475	0.0000	6,212.1039
2022	4.5441	38.8811	40.8776	0.1240	8.8255	1.6361	10.4616	3.6369	1.5052	5.1421	0.0000	12,493.4403	12,493.4403	1.9485	0.0000	12,518.5707
2023	4.1534	25.7658	38.7457	0.1206	7.0088	0.7592	7.7679	1.8799	0.7136	2.5935	0.0000	12,150.4890	12,150.4890	0.9589	0.0000	12,174.4615
2024	237.0219	9.5478	14.9642	0.0239	1.2171	0.4694	1.2875	0.3229	0.4319	0.4621	0.0000	2,313.1808	2,313.1808	0.7166	0.0000	2,331.0955
Maximum	**237.0219**	**46.4415**	**40.8776**	**0.1240**	**18.2032**	**2.0456**	**20.2488**	**9.9670**	**1.8820**	**11.8490**	**0.0000**	**12,493.4403**	**12,493.4403**	**1.9485**	**0.0000**	**12,518.5707**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Energy	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387
Mobile	9.8489	45.4304	114.8495	0.4917	45.9592	0.3360	46.2951	12.2950	0.3119	12.6070		50,306.6034	50,306.6034	2.1807		50,361.1208
Total	**41.1168**	**67.2262**	**207.5497**	**0.6278**	**45.9592**	**2.4626**	**48.4217**	**12.2950**	**2.4385**	**14.7336**	**0.0000**	**76,811.1816**	**76,811.1816**	**2.8282**	**0.4832**	**77,025.8786**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Energy	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387
Mobile	9.8489	45.4304	114.8495	0.4917	45.9592	0.3360	46.2951	12.2950	0.3119	12.6070		50,306.6034	50,306.6034	2.1807		50,361.1208
Total	**41.1168**	**67.2262**	**207.5497**	**0.6278**	**45.9592**	**2.4626**	**48.4217**	**12.2950**	**2.4385**	**14.7336**	**0.0000**	**76,811.1816**	**76,811.1816**	**2.8282**	**0.4832**	**77,025.8786**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/1/2021	10/12/2021	5	30	
2	Site Preparation	Site Preparation	10/13/2021	11/9/2021	5	20	
3	Grading	Grading	11/10/2021	1/11/2022	5	45	
4	Building Construction	Building Construction	1/12/2022	12/12/2023	5	500	
5	Paving	Paving	12/13/2023	1/30/2024	5	35	
6	Architectural Coating	Architectural Coating	1/31/2024	3/19/2024	5	35	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 112.5

Acres of Paving: 0

Residential Indoor: 2,025,000; Residential Outdoor: 675,000; Non-Residential Indoor: 326,400; Non-Residential Outdoor: 108,800; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	458.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	801.00	143.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	160.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3074	0.0000	3.3074	0.5008	0.0000	0.5008			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411		3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**3.3074**	**1.5513**	**4.8588**	**0.5008**	**1.4411**	**1.9419**		**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1273	4.0952	0.9602	0.0119	0.2669	0.0126	0.2795	0.0732	0.0120	0.0852		1,292.2413	1,292.2413	0.0877		1,294.4337
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0487	0.0313	0.4282	1.1800e-003	0.1141	9.5000e-004	0.1151	0.0303	8.8000e-004	0.0311		117.2799	117.2799	3.5200e-003		117.3678
Total	**0.1760**	**4.1265**	**1.3884**	**0.0131**	**0.3810**	**0.0135**	**0.3946**	**0.1034**	**0.0129**	**0.1163**		**1,409.5212**	**1,409.5212**	**0.0912**		**1,411.8015**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3074	0.0000	3.3074	0.5008	0.0000	0.5008			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411	0.0000	3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**3.3074**	**1.5513**	**4.8588**	**0.5008**	**1.4411**	**1.9419**	**0.0000**	**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1273	4.0952	0.9602	0.0119	0.2669	0.0126	0.2795	0.0732	0.0120	0.0852		1,292.2413	1,292.2413	0.0877		1,294.4337
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0487	0.0313	0.4282	1.1800e-003	0.1141	9.5000e-004	0.1151	0.0303	8.8000e-004	0.0311		117.2799	117.2799	3.5200e-003		117.3678
Total	**0.1760**	**4.1265**	**1.3884**	**0.0131**	**0.3810**	**0.0135**	**0.3946**	**0.1034**	**0.0129**	**0.1163**		**1,409.5212**	**1,409.5212**	**0.0912**		**1,411.8015**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**		**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0584	0.0375	0.5139	1.4100e-003	0.1369	1.1400e-003	0.1381	0.0363	1.0500e-003	0.0374		140.7359	140.7359	4.2200e-003		140.8414
Total	**0.0584**	**0.0375**	**0.5139**	**1.4100e-003**	**0.1369**	**1.1400e-003**	**0.1381**	**0.0363**	**1.0500e-003**	**0.0374**		**140.7359**	**140.7359**	**4.2200e-003**		**140.8414**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0584	0.0375	0.5139	1.4100e-003	0.1369	1.1400e-003	0.1381	0.0363	1.0500e-003	0.0374		140.7359	140.7359	4.2200e-003		140.8414
Total	**0.0584**	**0.0375**	**0.5139**	**1.4100e-003**	**0.1369**	**1.1400e-003**	**0.1381**	**0.0363**	**1.0500e-003**	**0.0374**		**140.7359**	**140.7359**	**4.2200e-003**		**140.8414**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265		6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**8.6733**	**1.9853**	**10.6587**	**3.5965**	**1.8265**	**5.4230**		**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0649	0.0417	0.5710	1.5700e-003	0.1521	1.2700e-003	0.1534	0.0404	1.1700e-003	0.0415		156.3732	156.3732	4.6900e-003		156.4904
Total	**0.0649**	**0.0417**	**0.5710**	**1.5700e-003**	**0.1521**	**1.2700e-003**	**0.1534**	**0.0404**	**1.1700e-003**	**0.0415**		**156.3732**	**156.3732**	**4.6900e-003**		**156.4904**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265	0.0000	6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**8.6733**	**1.9853**	**10.6587**	**3.5965**	**1.8265**	**5.4230**	**0.0000**	**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0649	0.0417	0.5710	1.5700e-003	0.1521	1.2700e-003	0.1534	0.0404	1.1700e-003	0.0415		156.3732	156.3732	4.6900e-003		156.4904
Total	**0.0649**	**0.0417**	**0.5710**	**1.5700e-003**	**0.1521**	**1.2700e-003**	**0.1534**	**0.0404**	**1.1700e-003**	**0.0415**		**156.3732**	**156.3732**	**4.6900e-003**		**156.4904**

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041		6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.6733**	**1.6349**	**10.3082**	**3.5965**	**1.5041**	**5.1006**		**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

3.4 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0607	0.0376	0.5263	1.5100e-003	0.1521	1.2300e-003	0.1534	0.0404	1.1300e-003	0.0415		150.8754	150.8754	4.2400e-003		150.9813
Total	**0.0607**	**0.0376**	**0.5263**	**1.5100e-003**	**0.1521**	**1.2300e-003**	**0.1534**	**0.0404**	**1.1300e-003**	**0.0415**		**150.8754**	**150.8754**	**4.2400e-003**		**150.9813**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041	0.0000	6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.6733**	**1.6349**	**10.3082**	**3.5965**	**1.5041**	**5.1006**	**0.0000**	**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

3.4 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0607	0.0376	0.5263	1.5100e-003	0.1521	1.2300e-003	0.1534	0.0404	1.1300e-003	0.0415		150.8754	150.8754	4.2400e-003		150.9813
Total	**0.0607**	**0.0376**	**0.5263**	**1.5100e-003**	**0.1521**	**1.2300e-003**	**0.1534**	**0.0404**	**1.1300e-003**	**0.0415**		**150.8754**	**150.8754**	**4.2400e-003**		**150.9813**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4079	13.2032	3.4341	0.0364	0.9155	0.0248	0.9404	0.2636	0.0237	0.2873		3,896.5482	3,896.5482	0.2236		3,902.1384
Worker	2.4299	1.5074	21.0801	0.0607	6.0932	0.0493	6.1425	1.6163	0.0454	1.6617		6,042.5585	6,042.5585	0.1697		6,046.8000
Total	**2.8378**	**14.7106**	**24.5142**	**0.0971**	**7.0087**	**0.0741**	**7.0828**	**1.8799**	**0.0691**	**1.9490**		**9,939.1067**	**9,939.1067**	**0.3933**		**9,948.9384**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4079	13.2032	3.4341	0.0364	0.9155	0.0248	0.9404	0.2636	0.0237	0.2873		3,896.5482	3,896.5482	0.2236		3,902.1384
Worker	2.4299	1.5074	21.0801	0.0607	6.0932	0.0493	6.1425	1.6163	0.0454	1.6617		6,042.5585	6,042.5585	0.1697		6,046.8000
Total	**2.8378**	**14.7106**	**24.5142**	**0.0971**	**7.0087**	**0.0741**	**7.0828**	**1.8799**	**0.0691**	**1.9490**		**9,939.1067**	**9,939.1067**	**0.3933**		**9,948.9384**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3027	10.0181	3.1014	0.0352	0.9156	0.0116	0.9271	0.2636	0.0111	0.2747		3,773.8762	3,773.8762	0.1982		3,778.8300
Worker	2.2780	1.3628	19.4002	0.0584	6.0932	0.0479	6.1411	1.6163	0.0441	1.6604		5,821.4028	5,821.4028	0.1529		5,825.2254
Total	**2.5807**	**11.3809**	**22.5017**	**0.0936**	**7.0088**	**0.0595**	**7.0682**	**1.8799**	**0.0552**	**1.9350**		**9,595.2790**	**9,595.2790**	**0.3511**		**9,604.0554**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3027	10.0181	3.1014	0.0352	0.9156	0.0116	0.9271	0.2636	0.0111	0.2747		3,773.8762	3,773.8762	0.1982		3,778.8300
Worker	2.2780	1.3628	19.4002	0.0584	6.0932	0.0479	6.1411	1.6163	0.0441	1.6604		5,821.4028	5,821.4028	0.1529		5,825.2254
Total	**2.5807**	**11.3809**	**22.5017**	**0.0936**	**7.0088**	**0.0595**	**7.0682**	**1.8799**	**0.0552**	**1.9350**		**9,595.2790**	**9,595.2790**	**0.3511**		**9,604.0554**

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

3.6 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0427	0.0255	0.3633	1.0900e-003	0.1141	9.0000e-004	0.1150	0.0303	8.3000e-004	0.0311		109.0150	109.0150	2.8600e-003		109.0866
Total	**0.0427**	**0.0255**	**0.3633**	**1.0900e-003**	**0.1141**	**9.0000e-004**	**0.1150**	**0.0303**	**8.3000e-004**	**0.0311**		**109.0150**	**109.0150**	**2.8600e-003**		**109.0866**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

3.6 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0427	0.0255	0.3633	1.0900e-003	0.1141	9.0000e-004	0.1150	0.0303	8.3000e-004	0.0311		109.0150	109.0150	2.8600e-003		109.0866
Total	**0.0427**	**0.0255**	**0.3633**	**1.0900e-003**	**0.1141**	**9.0000e-004**	**0.1150**	**0.0303**	**8.3000e-004**	**0.0311**		**109.0150**	**109.0150**	**2.8600e-003**		**109.0866**

3.6 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9882**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**		**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

3.6 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0403	0.0233	0.3384	1.0600e-003	0.1141	8.8000e-004	0.1150	0.0303	8.1000e-004	0.0311		105.6336	105.6336	2.6300e-003		105.6992
Total	**0.0403**	**0.0233**	**0.3384**	**1.0600e-003**	**0.1141**	**8.8000e-004**	**0.1150**	**0.0303**	**8.1000e-004**	**0.0311**		**105.6336**	**105.6336**	**2.6300e-003**		**105.6992**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310	0.0000	2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9882**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**	**0.0000**	**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

3.6 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0403	0.0233	0.3384	1.0600e-003	0.1141	8.8000e-004	0.1150	0.0303	8.1000e-004	0.0311		105.6336	105.6336	2.6300e-003		105.6992
Total	**0.0403**	**0.0233**	**0.3384**	**1.0600e-003**	**0.1141**	**8.8000e-004**	**0.1150**	**0.0303**	**8.1000e-004**	**0.0311**		**105.6336**	**105.6336**	**2.6300e-003**		**105.6992**

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	236.4115					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**236.5923**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.7 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.4296	0.2481	3.6098	0.0113	1.2171	9.4300e-003	1.2266	0.3229	8.6800e-003	0.3315		1,126.7583	1,126.7583	0.0280		1,127.4583
Total	**0.4296**	**0.2481**	**3.6098**	**0.0113**	**1.2171**	**9.4300e-003**	**1.2266**	**0.3229**	**8.6800e-003**	**0.3315**		**1,126.7583**	**1,126.7583**	**0.0280**		**1,127.4583**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	236.4115					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**236.5923**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.7 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.4296	0.2481	3.6098	0.0113	1.2171	9.4300e-003	1.2266	0.3229	8.6800e-003	0.3315		1,126.7583	1,126.7583	0.0280		1,127.4583
Total	**0.4296**	**0.2481**	**3.6098**	**0.0113**	**1.2171**	**9.4300e-003**	**1.2266**	**0.3229**	**8.6800e-003**	**0.3315**		**1,126.7583**	**1,126.7583**	**0.0280**		**1,127.4583**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	9.8489	45.4304	114.8495	0.4917	45.9592	0.3360	46.2951	12.2950	0.3119	12.6070		50,306.6034	50,306.6034	2.1807		50,361.1208
Unmitigated	9.8489	45.4304	114.8495	0.4917	45.9592	0.3360	46.2951	12.2950	0.3119	12.6070		50,306.6034	50,306.6034	2.1807		50,361.1208

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	145.75	154.25	154.00	506,227	506,227
Apartments Mid Rise	4,026.75	3,773.25	4075.50	13,660,065	13,660,065
General Office Building	288.45	62.55	31.05	706,812	706,812
High Turnover (Sit Down Restaurant)	2,368.80	2,873.52	2817.72	3,413,937	3,413,937
Hotel	192.00	187.50	160.00	445,703	445,703
Quality Restaurant	501.12	511.92	461.20	707,488	707,488
Regional Shopping Center	528.08	601.44	357.84	1,112,221	1,112,221
Total	8,050.95	8,164.43	8,057.31	20,552,452	20,552,452

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
High Turnover (Sit Down	16.60	8.40	6.90	8.50	72.50	19.00	37	20	43
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4
Quality Restaurant	16.60	8.40	6.90	12.00	69.00	19.00	38	18	44
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Apartments Mid Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
General Office Building	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
High Turnover (Sit Down Restaurant)	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Hotel	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Quality Restaurant	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Regional Shopping Center	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387
NaturalGas Unmitigated	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	1119.16	0.0121	0.1031	0.0439	6.6000e-004		8.3400e-003	8.3400e-003		8.3400e-003	8.3400e-003		131.6662	131.6662	2.5200e-003	2.4100e-003	132.4486
Apartments Mid Rise	35784.3	0.3859	3.2978	1.4033	0.0211		0.2666	0.2666		0.2666	0.2666		4,209.9164	4,209.9164	0.0807	0.0772	4,234.9339
General Office Building	1283.42	0.0138	0.1258	0.1057	7.5000e-004		9.5600e-003	9.5600e-003		9.5600e-003	9.5600e-003		150.9911	150.9911	2.8900e-003	2.7700e-003	151.8884
High Turnover (Sit Down Restaurant)	22759.9	0.2455	2.2314	1.8743	0.0134		0.1696	0.1696		0.1696	0.1696		2,677.6342	2,677.6342	0.0513	0.0491	2,693.5460
Hotel	4769.72	0.0514	0.4676	0.3928	2.8100e-003		0.0355	0.0355		0.0355	0.0355		561.1436	561.1436	0.0108	0.0103	564.4782
Quality Restaurant	5057.75	0.0545	0.4959	0.4165	2.9800e-003		0.0377	0.0377		0.0377	0.0377		595.0298	595.0298	0.0114	0.0109	598.5658
Regional Shopping Center	251.616	2.7100e-003	0.0247	0.0207	1.5000e-004		1.8700e-003	1.8700e-003		1.8700e-003	1.8700e-003		29.6019	29.6019	5.7000e-004	5.4000e-004	29.7778
Total		**0.7660**	**6.7463**	**4.2573**	**0.0418**		**0.5292**	**0.5292**		**0.5292**	**0.5292**		**8,355.9832**	**8,355.9832**	**0.1602**	**0.1532**	**8,405.6387**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	1.11916	0.0121	0.1031	0.0439	6.6000e-004		8.3400e-003	8.3400e-003		8.3400e-003	8.3400e-003		131.6662	131.6662	2.5200e-003	2.4100e-003	132.4486
Apartments Mid Rise	35.7843	0.3859	3.2978	1.4033	0.0211		0.2666	0.2666		0.2666	0.2666		4,209.9164	4,209.9164	0.0807	0.0772	4,234.9339
General Office Building	1.28342	0.0138	0.1258	0.1057	7.5000e-004		9.5600e-003	9.5600e-003		9.5600e-003	9.5600e-003		150.9911	150.9911	2.8900e-003	2.7700e-003	151.8884
High Turnover (Sit Down Restaurant)	22.7599	0.2455	2.2314	1.8743	0.0134		0.1696	0.1696		0.1696	0.1696		2,677.6342	2,677.6342	0.0513	0.0491	2,693.5460
Hotel	4.76972	0.0514	0.4676	0.3928	2.8100e-003		0.0355	0.0355		0.0355	0.0355		561.1436	561.1436	0.0108	0.0103	564.4782
Quality Restaurant	5.05775	0.0545	0.4959	0.4165	2.9800e-003		0.0377	0.0377		0.0377	0.0377		595.0298	595.0298	0.0114	0.0109	598.5658
Regional Shopping Center	0.251616	2.7100e-003	0.0247	0.0207	1.5000e-004		1.8700e-003	1.8700e-003		1.8700e-003	1.8700e-003		29.6019	29.6019	5.7000e-004	5.4000e-004	29.7778
Total		**0.7660**	**6.7463**	**4.2573**	**0.0418**		**0.5292**	**0.5292**		**0.5292**	**0.5292**		**8,355.9832**	**8,355.9832**	**0.1602**	**0.1532**	**8,405.6387**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Unmitigated	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.2670					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	24.1085					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	1.6500	14.1000	6.0000	0.0900		1.1400	1.1400		1.1400	1.1400	0.0000	18,000.0000	18,000.0000	0.3450	0.3300	18,106.9650
Landscaping	2.4766	0.9496	82.4430	4.3600e-003		0.4574	0.4574		0.4574	0.4574		148.5950	148.5950	0.1424		152.1542
Total	**30.5020**	**15.0496**	**88.4430**	**0.0944**		**1.5974**	**1.5974**		**1.5974**	**1.5974**	**0.0000**	**18,148.5950**	**18,148.5950**	**0.4874**	**0.3300**	**18,259.1192**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.2670					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	24.1085					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	1.6500	14.1000	6.0000	0.0900		1.1400	1.1400		1.1400	1.1400	0.0000	18,000.0000	18,000.0000	0.3450	0.3300	18,106.9650
Landscaping	2.4766	0.9496	82.4430	4.3600e-003		0.4574	0.4574		0.4574	0.4574		148.5950	148.5950	0.1424		152.1542
Total	**30.5020**	**15.0496**	**88.4430**	**0.0944**		**1.5974**	**1.5974**		**1.5974**	**1.5974**	**0.0000**	**18,148.5950**	**18,148.5950**	**0.4874**	**0.3300**	**18,259.1192**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Village South Specific Plan (Proposed)

Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	45.00	1000sqft	1.03	45,000.00	0
High Turnover (Sit Down Restaurant)	36.00	1000sqft	0.83	36,000.00	0
Hotel	50.00	Room	1.67	72,600.00	0
Quality Restaurant	8.00	1000sqft	0.18	8,000.00	0
Apartments Low Rise	25.00	Dwelling Unit	1.56	25,000.00	72
Apartments Mid Rise	975.00	Dwelling Unit	25.66	975,000.00	2789
Regional Shopping Center	56.00	1000sqft	1.29	56,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	9			**Operational Year**	2028
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Winter

Project Characteristics - Consistent with the DEIR's model.

Land Use - See SWAPE comment regarding residential and retail land uses.

Construction Phase - See SWAPE comment regarding individual construction phase lengths.

Demolition - Consistent with the DEIR's model. See SWAPE comment regarding demolition.

Vehicle Trips - Saturday trips consistent with the DEIR's model. See SWAPE comment regarding weekday and Sunday trips.

Woodstoves - Woodstoves and wood-burning fireplaces consistent with the DEIR's model. See SWAPE comment regarding gas fireplaces.

Energy Use -

Construction Off-road Equipment Mitigation - See SWAPE comment on construction-related mitigation.

Area Mitigation - See SWAPE comment regarding operational mitigation measures.

Water Mitigation - See SWAPE comment regarding operational mitigation measures.

Trips and VMT - Local hire provision

Table Name	Column Name	Default Value	New Value
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberWood	1.25	0.00
tblFireplaces	NumberWood	48.75	0.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblVehicleTrips	ST_TR	7.16	6.17
tblVehicleTrips	ST_TR	6.39	3.87
tblVehicleTrips	ST_TR	2.46	1.39
tblVehicleTrips	ST_TR	158.37	79.82

tblVehicleTrips	ST_TR	8.19	3.75
tblVehicleTrips	ST_TR	94.36	63.99
tblVehicleTrips	ST_TR	49.97	10.74
tblVehicleTrips	SU_TR	6.07	6.16
tblVehicleTrips	SU_TR	5.86	4.18
tblVehicleTrips	SU_TR	1.05	0.69
tblVehicleTrips	SU_TR	131.84	78.27
tblVehicleTrips	SU_TR	5.95	3.20
tblVehicleTrips	SU_TR	72.16	57.65
tblVehicleTrips	SU_TR	25.24	6.39
tblVehicleTrips	WD_TR	6.59	5.83
tblVehicleTrips	WD_TR	6.65	4.13
tblVehicleTrips	WD_TR	11.03	6.41
tblVehicleTrips	WD_TR	127.15	65.80
tblVehicleTrips	WD_TR	8.17	3.84
tblVehicleTrips	WD_TR	89.95	62.64
tblVehicleTrips	WD_TR	42.70	9.43
tblWoodstoves	NumberCatalytic	1.25	0.00
tblWoodstoves	NumberCatalytic	48.75	0.00
tblWoodstoves	NumberNoncatalytic	1.25	0.00
tblWoodstoves	NumberNoncatalytic	48.75	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.2621	46.4460	31.4068	0.0635	18.2032	2.0456	20.2488	9.9670	1.8820	11.8490	0.0000	6,154.3377	6,154.3377	1.9472	0.0000	6,203.0186
2022	4.7966	38.8851	39.6338	0.1195	8.8255	1.6361	10.4616	3.6369	1.5052	5.1421	0.0000	12,035.3440	12,035.3440	1.9482	0.0000	12,060.6013
2023	4.3939	25.8648	37.5031	0.1162	7.0088	0.7598	7.7685	1.8799	0.7142	2.5940	0.0000	11,710.4080	11,710.4080	0.9617	0.0000	11,734.4497
2024	237.0656	9.5503	14.9372	0.0238	1.2171	0.4694	1.2875	0.3229	0.4319	0.4621	0.0000	2,307.0517	2,307.0517	0.7164	0.0000	2,324.9627
Maximum	**237.0656**	**46.4460**	**39.6338**	**0.1195**	**18.2032**	**2.0456**	**20.2488**	**9.9670**	**1.8820**	**11.8490**	**0.0000**	**12,035.3440**	**12,035.3440**	**1.9482**	**0.0000**	**12,060.6013**

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.2621	46.4460	31.4068	0.0635	18.2032	2.0456	20.2488	9.9670	1.8820	11.8490	0.0000	6,154.3377	6,154.3377	1.9472	0.0000	6,203.0186
2022	4.7966	38.8851	39.6338	0.1195	8.8255	1.6361	10.4616	3.6369	1.5052	5.1421	0.0000	12,035.3440	12,035.3440	1.9482	0.0000	12,060.6013
2023	4.3939	25.8648	37.5031	0.1162	7.0088	0.7598	7.7685	1.8799	0.7142	2.5940	0.0000	11,710.4080	11,710.4080	0.9617	0.0000	11,734.4497
2024	237.0656	9.5503	14.9372	0.0238	1.2171	0.4694	1.2875	0.3229	0.4319	0.4621	0.0000	2,307.0517	2,307.0517	0.7164	0.0000	2,324.9627
Maximum	**237.0656**	**46.4460**	**39.6338**	**0.1195**	**18.2032**	**2.0456**	**20.2488**	**9.9670**	**1.8820**	**11.8490**	**0.0000**	**12,035.3440**	**12,035.3440**	**1.9482**	**0.0000**	**12,060.6013**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Energy	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387
Mobile	9.5233	45.9914	110.0422	0.4681	45.9592	0.3373	46.2965	12.2950	0.3132	12.6083		47,917.8005	47,917.8005	2.1953		47,972.6839
Total	**40.7912**	**67.7872**	**202.7424**	**0.6043**	**45.9592**	**2.4640**	**48.4231**	**12.2950**	**2.4399**	**14.7349**	**0.0000**	**74,422.3787**	**74,422.3787**	**2.8429**	**0.4832**	**74,637.4417**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Energy	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387
Mobile	9.5233	45.9914	110.0422	0.4681	45.9592	0.3373	46.2965	12.2950	0.3132	12.6083		47,917.8005	47,917.8005	2.1953		47,972.6839
Total	**40.7912**	**67.7872**	**202.7424**	**0.6043**	**45.9592**	**2.4640**	**48.4231**	**12.2950**	**2.4399**	**14.7349**	**0.0000**	**74,422.3787**	**74,422.3787**	**2.8429**	**0.4832**	**74,637.4417**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/1/2021	10/12/2021	5	30	
2	Site Preparation	Site Preparation	10/13/2021	11/9/2021	5	20	
3	Grading	Grading	11/10/2021	1/11/2022	5	45	
4	Building Construction	Building Construction	1/12/2022	12/12/2023	5	500	
5	Paving	Paving	12/13/2023	1/30/2024	5	35	
6	Architectural Coating	Architectural Coating	1/31/2024	3/19/2024	5	35	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 112.5

Acres of Paving: 0

Residential Indoor: 2,025,000; Residential Outdoor: 675,000; Non-Residential Indoor: 326,400; Non-Residential Outdoor: 108,800; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	458.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	801.00	143.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	160.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3074	0.0000	3.3074	0.5008	0.0000	0.5008			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411		3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**3.3074**	**1.5513**	**4.8588**	**0.5008**	**1.4411**	**1.9419**		**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1304	4.1454	1.0182	0.0117	0.2669	0.0128	0.2797	0.0732	0.0122	0.0854		1,269.8555	1,269.8555	0.0908		1,272.1252
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0532	0.0346	0.3963	1.1100e-003	0.1141	9.5000e-004	0.1151	0.0303	8.8000e-004	0.0311		110.4707	110.4707	3.3300e-003		110.5539
Total	**0.1835**	**4.1800**	**1.4144**	**0.0128**	**0.3810**	**0.0137**	**0.3948**	**0.1034**	**0.0131**	**0.1165**		**1,380.3262**	**1,380.3262**	**0.0941**		**1,382.6791**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3074	0.0000	3.3074	0.5008	0.0000	0.5008			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411	0.0000	3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**3.3074**	**1.5513**	**4.8588**	**0.5008**	**1.4411**	**1.9419**	**0.0000**	**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1304	4.1454	1.0182	0.0117	0.2669	0.0128	0.2797	0.0732	0.0122	0.0854		1,269.8555	1,269.8555	0.0908		1,272.1252
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0532	0.0346	0.3963	1.1100e-003	0.1141	9.5000e-004	0.1151	0.0303	8.8000e-004	0.0311		110.4707	110.4707	3.3300e-003		110.5539
Total	**0.1835**	**4.1800**	**1.4144**	**0.0128**	**0.3810**	**0.0137**	**0.3948**	**0.1034**	**0.0131**	**0.1165**		**1,380.3262**	**1,380.3262**	**0.0941**		**1,382.6791**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**		**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0638	0.0415	0.4755	1.3300e-003	0.1369	1.1400e-003	0.1381	0.0363	1.0500e-003	0.0374		132.5649	132.5649	3.9900e-003		132.6646
Total	**0.0638**	**0.0415**	**0.4755**	**1.3300e-003**	**0.1369**	**1.1400e-003**	**0.1381**	**0.0363**	**1.0500e-003**	**0.0374**		**132.5649**	**132.5649**	**3.9900e-003**		**132.6646**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0638	0.0415	0.4755	1.3300e-003	0.1369	1.1400e-003	0.1381	0.0363	1.0500e-003	0.0374		132.5649	132.5649	3.9900e-003		132.6646
Total	**0.0638**	**0.0415**	**0.4755**	**1.3300e-003**	**0.1369**	**1.1400e-003**	**0.1381**	**0.0363**	**1.0500e-003**	**0.0374**		**132.5649**	**132.5649**	**3.9900e-003**		**132.6646**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265		6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**8.6733**	**1.9853**	**10.6587**	**3.5965**	**1.8265**	**5.4230**		**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0709	0.0462	0.5284	1.4800e-003	0.1521	1.2700e-003	0.1534	0.0404	1.1700e-003	0.0415		147.2943	147.2943	4.4300e-003		147.4051
Total	**0.0709**	**0.0462**	**0.5284**	**1.4800e-003**	**0.1521**	**1.2700e-003**	**0.1534**	**0.0404**	**1.1700e-003**	**0.0415**		**147.2943**	**147.2943**	**4.4300e-003**		**147.4051**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265	0.0000	6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**8.6733**	**1.9853**	**10.6587**	**3.5965**	**1.8265**	**5.4230**	**0.0000**	**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0709	0.0462	0.5284	1.4800e-003	0.1521	1.2700e-003	0.1534	0.0404	1.1700e-003	0.0415		147.2943	147.2943	4.4300e-003		147.4051
Total	**0.0709**	**0.0462**	**0.5284**	**1.4800e-003**	**0.1521**	**1.2700e-003**	**0.1534**	**0.0404**	**1.1700e-003**	**0.0415**		**147.2943**	**147.2943**	**4.4300e-003**		**147.4051**

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041		6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.6733**	**1.6349**	**10.3082**	**3.5965**	**1.5041**	**5.1006**		**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

3.4 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0665	0.0416	0.4861	1.4300e-003	0.1521	1.2300e-003	0.1534	0.0404	1.1300e-003	0.0415		142.1207	142.1207	4.0000e-003		142.2207
Total	**0.0665**	**0.0416**	**0.4861**	**1.4300e-003**	**0.1521**	**1.2300e-003**	**0.1534**	**0.0404**	**1.1300e-003**	**0.0415**		**142.1207**	**142.1207**	**4.0000e-003**		**142.2207**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041	0.0000	6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.6733**	**1.6349**	**10.3082**	**3.5965**	**1.5041**	**5.1006**	**0.0000**	**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

3.4 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0665	0.0416	0.4861	1.4300e-003	0.1521	1.2300e-003	0.1534	0.0404	1.1300e-003	0.0415		142.1207	142.1207	4.0000e-003		142.2207
Total	**0.0665**	**0.0416**	**0.4861**	**1.4300e-003**	**0.1521**	**1.2300e-003**	**0.1534**	**0.0404**	**1.1300e-003**	**0.0415**		**142.1207**	**142.1207**	**4.0000e-003**		**142.2207**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4284	13.1673	3.8005	0.0354	0.9155	0.0256	0.9412	0.2636	0.0245	0.2881		3,789.0750	3,789.0750	0.2381		3,795.0283
Worker	2.6620	1.6677	19.4699	0.0571	6.0932	0.0493	6.1425	1.6163	0.0454	1.6617		5,691.9354	5,691.9354	0.1602		5,695.9408
Total	**3.0904**	**14.8350**	**23.2704**	**0.0926**	**7.0087**	**0.0749**	**7.0836**	**1.8799**	**0.0699**	**1.9498**		**9,481.0104**	**9,481.0104**	**0.3984**		**9,490.9691**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4284	13.1673	3.8005	0.0354	0.9155	0.0256	0.9412	0.2636	0.0245	0.2881		3,789.0750	3,789.0750	0.2381		3,795.0283
Worker	2.6620	1.6677	19.4699	0.0571	6.0932	0.0493	6.1425	1.6163	0.0454	1.6617		5,691.9354	5,691.9354	0.1602		5,695.9408
Total	**3.0904**	**14.8350**	**23.2704**	**0.0926**	**7.0087**	**0.0749**	**7.0836**	**1.8799**	**0.0699**	**1.9498**		**9,481.0104**	**9,481.0104**	**0.3984**		**9,490.9691**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3183	9.9726	3.3771	0.0343	0.9156	0.0122	0.9277	0.2636	0.0116	0.2752		3,671.4007	3,671.4007	0.2096		3,676.6417
Worker	2.5029	1.5073	17.8820	0.0550	6.0932	0.0479	6.1411	1.6163	0.0441	1.6604		5,483.7974	5,483.7974	0.1442		5,487.4020
Total	**2.8211**	**11.4799**	**21.2591**	**0.0893**	**7.0088**	**0.0601**	**7.0688**	**1.8799**	**0.0557**	**1.9356**		**9,155.1981**	**9,155.1981**	**0.3538**		**9,164.0437**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3183	9.9726	3.3771	0.0343	0.9156	0.0122	0.9277	0.2636	0.0116	0.2752		3,671.4007	3,671.4007	0.2096		3,676.6417
Worker	2.5029	1.5073	17.8820	0.0550	6.0932	0.0479	6.1411	1.6163	0.0441	1.6604		5,483.7974	5,483.7974	0.1442		5,487.4020
Total	**2.8211**	**11.4799**	**21.2591**	**0.0893**	**7.0088**	**0.0601**	**7.0688**	**1.8799**	**0.0557**	**1.9356**		**9,155.1981**	**9,155.1981**	**0.3538**		**9,164.0437**

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

3.6 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0469	0.0282	0.3349	1.0300e-003	0.1141	9.0000e-004	0.1150	0.0303	8.3000e-004	0.0311		102.6928	102.6928	2.7000e-003		102.7603
Total	**0.0469**	**0.0282**	**0.3349**	**1.0300e-003**	**0.1141**	**9.0000e-004**	**0.1150**	**0.0303**	**8.3000e-004**	**0.0311**		**102.6928**	**102.6928**	**2.7000e-003**		**102.7603**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

3.6 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0469	0.0282	0.3349	1.0300e-003	0.1141	9.0000e-004	0.1150	0.0303	8.3000e-004	0.0311		102.6928	102.6928	2.7000e-003		102.7603
Total	**0.0469**	**0.0282**	**0.3349**	**1.0300e-003**	**0.1141**	**9.0000e-004**	**0.1150**	**0.0303**	**8.3000e-004**	**0.0311**		**102.6928**	**102.6928**	**2.7000e-003**		**102.7603**

3.6 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9882**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**		**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

3.6 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0444	0.0257	0.3114	1.0000e-003	0.1141	8.8000e-004	0.1150	0.0303	8.1000e-004	0.0311		99.5045	99.5045	2.4700e-003		99.5663
Total	**0.0444**	**0.0257**	**0.3114**	**1.0000e-003**	**0.1141**	**8.8000e-004**	**0.1150**	**0.0303**	**8.1000e-004**	**0.0311**		**99.5045**	**99.5045**	**2.4700e-003**		**99.5663**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310	0.0000	2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9882**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**	**0.0000**	**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

3.6 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0444	0.0257	0.3114	1.0000e-003	0.1141	8.8000e-004	0.1150	0.0303	8.1000e-004	0.0311		99.5045	99.5045	2.4700e-003		99.5663
Total	**0.0444**	**0.0257**	**0.3114**	**1.0000e-003**	**0.1141**	**8.8000e-004**	**0.1150**	**0.0303**	**8.1000e-004**	**0.0311**		**99.5045**	**99.5045**	**2.4700e-003**		**99.5663**

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	236.4115					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**236.5923**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.7 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.4734	0.2743	3.3220	0.0107	1.2171	9.4300e-003	1.2266	0.3229	8.6800e-003	0.3315		1,061.3818	1,061.3818	0.0264		1,062.0410
Total	**0.4734**	**0.2743**	**3.3220**	**0.0107**	**1.2171**	**9.4300e-003**	**1.2266**	**0.3229**	**8.6800e-003**	**0.3315**		**1,061.3818**	**1,061.3818**	**0.0264**		**1,062.0410**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	236.4115					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**236.5923**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.7 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.4734	0.2743	3.3220	0.0107	1.2171	9.4300e-003	1.2266	0.3229	8.6800e-003	0.3315		1,061.3818	1,061.3818	0.0264		1,062.0410
Total	**0.4734**	**0.2743**	**3.3220**	**0.0107**	**1.2171**	**9.4300e-003**	**1.2266**	**0.3229**	**8.6800e-003**	**0.3315**		**1,061.3818**	**1,061.3818**	**0.0264**		**1,062.0410**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	9.5233	45.9914	110.0422	0.4681	45.9592	0.3373	46.2965	12.2950	0.3132	12.6083		47,917.8005	47,917.8005	2.1953		47,972.6839
Unmitigated	9.5233	45.9914	110.0422	0.4681	45.9592	0.3373	46.2965	12.2950	0.3132	12.6083		47,917.8005	47,917.8005	2.1953		47,972.6839

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	145.75	154.25	154.00	506,227	506,227
Apartments Mid Rise	4,026.75	3,773.25	4075.50	13,660,065	13,660,065
General Office Building	288.45	62.55	31.05	706,812	706,812
High Turnover (Sit Down Restaurant)	2,368.80	2,873.52	2817.72	3,413,937	3,413,937
Hotel	192.00	187.50	160.00	445,703	445,703
Quality Restaurant	501.12	511.92	461.20	707,488	707,488
Regional Shopping Center	528.08	601.44	357.84	1,112,221	1,112,221
Total	8,050.95	8,164.43	8,057.31	20,552,452	20,552,452

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
High Turnover (Sit Down	16.60	8.40	6.90	8.50	72.50	19.00	37	20	43
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4
Quality Restaurant	16.60	8.40	6.90	12.00	69.00	19.00	38	18	44
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Apartments Mid Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
General Office Building	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
High Turnover (Sit Down Restaurant)	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Hotel	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Quality Restaurant	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Regional Shopping Center	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387
NaturalGas Unmitigated	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	1119.16	0.0121	0.1031	0.0439	6.6000e-004		8.3400e-003	8.3400e-003		8.3400e-003	8.3400e-003		131.6662	131.6662	2.5200e-003	2.4100e-003	132.4486
Apartments Mid Rise	35784.3	0.3859	3.2978	1.4033	0.0211		0.2666	0.2666		0.2666	0.2666		4,209.9164	4,209.9164	0.0807	0.0772	4,234.9339
General Office Building	1283.42	0.0138	0.1258	0.1057	7.5000e-004		9.5600e-003	9.5600e-003		9.5600e-003	9.5600e-003		150.9911	150.9911	2.8900e-003	2.7700e-003	151.8884
High Turnover (Sit Down Restaurant)	22759.9	0.2455	2.2314	1.8743	0.0134		0.1696	0.1696		0.1696	0.1696		2,677.6342	2,677.6342	0.0513	0.0491	2,693.5460
Hotel	4769.72	0.0514	0.4676	0.3928	2.8100e-003		0.0355	0.0355		0.0355	0.0355		561.1436	561.1436	0.0108	0.0103	564.4782
Quality Restaurant	5057.75	0.0545	0.4959	0.4165	2.9800e-003		0.0377	0.0377		0.0377	0.0377		595.0298	595.0298	0.0114	0.0109	598.5658
Regional Shopping Center	251.616	2.7100e-003	0.0247	0.0207	1.5000e-004		1.8700e-003	1.8700e-003		1.8700e-003	1.8700e-003		29.6019	29.6019	5.7000e-004	5.4000e-004	29.7778
Total		**0.7660**	**6.7463**	**4.2573**	**0.0418**		**0.5292**	**0.5292**		**0.5292**	**0.5292**		**8,355.9832**	**8,355.9832**	**0.1602**	**0.1532**	**8,405.6387**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	1.11916	0.0121	0.1031	0.0439	6.6000e-004		8.3400e-003	8.3400e-003		8.3400e-003	8.3400e-003		131.6662	131.6662	2.5200e-003	2.4100e-003	132.4486
Apartments Mid Rise	35.7843	0.3859	3.2978	1.4033	0.0211		0.2666	0.2666		0.2666	0.2666		4,209.9164	4,209.9164	0.0807	0.0772	4,234.9339
General Office Building	1.28342	0.0138	0.1258	0.1057	7.5000e-004		9.5600e-003	9.5600e-003		9.5600e-003	9.5600e-003		150.9911	150.9911	2.8900e-003	2.7700e-003	151.8884
High Turnover (Sit Down Restaurant)	22.7599	0.2455	2.2314	1.8743	0.0134		0.1696	0.1696		0.1696	0.1696		2,677.6342	2,677.6342	0.0513	0.0491	2,693.5460
Hotel	4.76972	0.0514	0.4676	0.3928	2.8100e-003		0.0355	0.0355		0.0355	0.0355		561.1436	561.1436	0.0108	0.0103	564.4782
Quality Restaurant	5.05775	0.0545	0.4959	0.4165	2.9800e-003		0.0377	0.0377		0.0377	0.0377		595.0298	595.0298	0.0114	0.0109	598.5658
Regional Shopping Center	0.251616	2.7100e-003	0.0247	0.0207	1.5000e-004		1.8700e-003	1.8700e-003		1.8700e-003	1.8700e-003		29.6019	29.6019	5.7000e-004	5.4000e-004	29.7778
Total		**0.7660**	**6.7463**	**4.2573**	**0.0418**		**0.5292**	**0.5292**		**0.5292**	**0.5292**		**8,355.9832**	**8,355.9832**	**0.1602**	**0.1532**	**8,405.6387**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Unmitigated	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.2670					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	24.1085					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	1.6500	14.1000	6.0000	0.0900		1.1400	1.1400		1.1400	1.1400	0.0000	18,000.0000	18,000.0000	0.3450	0.3300	18,106.9650
Landscaping	2.4766	0.9496	82.4430	4.3600e-003		0.4574	0.4574		0.4574	0.4574		148.5950	148.5950	0.1424		152.1542
Total	**30.5020**	**15.0496**	**88.4430**	**0.0944**		**1.5974**	**1.5974**		**1.5974**	**1.5974**	**0.0000**	**18,148.5950**	**18,148.5950**	**0.4874**	**0.3300**	**18,259.1192**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.2670					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	24.1085					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	1.6500	14.1000	6.0000	0.0900		1.1400	1.1400		1.1400	1.1400	0.0000	18,000.0000	18,000.0000	0.3450	0.3300	18,106.9650
Landscaping	2.4766	0.9496	82.4430	4.3600e-003		0.4574	0.4574		0.4574	0.4574		148.5950	148.5950	0.1424		152.1542
Total	**30.5020**	**15.0496**	**88.4430**	**0.0944**		**1.5974**	**1.5974**		**1.5974**	**1.5974**	**0.0000**	**18,148.5950**	**18,148.5950**	**0.4874**	**0.3300**	**18,259.1192**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Attachment C

Local Hire Provision Net Change	
Without Local Hire Provision	
Total Construction GHG Emissions (MT CO2e)	3,623
Amortized (MT CO2e/year)	120.77
With Local Hire Provision	
Total Construction GHG Emissions (MT CO2e)	3,024
Amortized (MT CO2e/year)	100.80
% Decrease in Construction-related GHG Emissions	***17%***

EXHIBIT B

SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

SOIL WATER AIR PROTECTION ENTERPRISE
2656 29th Street, Suite 201
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Paul Rosenfeld, Ph.D.

Chemical Fate and Transport & Air Dispersion Modeling

Principal Environmental Chemist

Risk Assessment & Remediation Specialist

Education

Ph.D. Soil Chemistry, University of Washington, 1999. Dissertation on volatile organic compound filtration.

M.S. Environmental Science, U.C. Berkeley, 1995. Thesis on organic waste economics.

B.A. Environmental Studies, U.C. Santa Barbara, 1991. Thesis on wastewater treatment.

Professional Experience

Dr. Rosenfeld has over 25 years' experience conducting environmental investigations and risk assessments for evaluating impacts to human health, property, and ecological receptors. His expertise focuses on the fate and transport of environmental contaminants, human health risk, exposure assessment, and ecological restoration. Dr. Rosenfeld has evaluated and modeled emissions from unconventional oil drilling operations, oil spills, landfills, boilers and incinerators, process stacks, storage tanks, confined animal feeding operations, and many other industrial and agricultural sources. His project experience ranges from monitoring and modeling of pollution sources to evaluating impacts of pollution on workers at industrial facilities and residents in surrounding communities.

Dr. Rosenfeld has investigated and designed remediation programs and risk assessments for contaminated sites containing lead, heavy metals, mold, bacteria, particulate matter, petroleum hydrocarbons, chlorinated solvents, pesticides, radioactive waste, dioxins and furans, semi- and volatile organic compounds, PCBs, PAHs, perchlorate, asbestos, per- and poly-fluoroalkyl substances (PFOA/PFOS), unusual polymers, fuel oxygenates (MTBE), among other pollutants. Dr. Rosenfeld also has experience evaluating greenhouse gas emissions from various projects and is an expert on the assessment of odors from industrial and agricultural sites, as well as the evaluation of odor nuisance impacts and technologies for abatement of odorous emissions. As a principal scientist at SWAPE, Dr. Rosenfeld directs air dispersion modeling and exposure assessments. He has served as an expert witness and testified about pollution sources causing nuisance and/or personal injury at dozens of sites and has testified as an expert witness on more than ten cases involving exposure to air contaminants from industrial sources.

Professional History:

Soil Water Air Protection Enterprise (SWAPE); 2003 to present; Principal and Founding Partner
UCLA School of Public Health; 2007 to 2011; Lecturer (Assistant Researcher)
UCLA School of Public Health; 2003 to 2006; Adjunct Professor
UCLA Environmental Science and Engineering Program; 2002-2004; Doctoral Intern Coordinator
UCLA Institute of the Environment, 2001-2002; Research Associate
Komex H_2O Science, 2001 to 2003; Senior Remediation Scientist
National Groundwater Association, 2002-2004; Lecturer
San Diego State University, 1999-2001; Adjunct Professor
Anteon Corp., San Diego, 2000-2001; Remediation Project Manager
Ogden (now Amec), San Diego, 2000-2000; Remediation Project Manager
Bechtel, San Diego, California, 1999 – 2000; Risk Assessor
King County, Seattle, 1996 – 1999; Scientist
James River Corp., Washington, 1995-96; Scientist
Big Creek Lumber, Davenport, California, 1995; Scientist
Plumas Corp., California and USFS, Tahoe 1993-1995; Scientist
Peace Corps and World Wildlife Fund, St. Kitts, West Indies, 1991-1993; Scientist

Publications:

Remy, L.L., Clay T., Byers, V., **Rosenfeld P. E.** (2019) Hospital, Health, and Community Burden After Oil Refinery Fires, Richmond, California 2007 and 2012. *Environmental Health.* 18:48

Simons, R.A., Seo, Y. **Rosenfeld, P**., (2015) Modeling the Effect of Refinery Emission On Residential Property Value. Journal of Real Estate Research. 27(3):321-342

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Tam L. K.., Wu C. D., Clark J. J. and **Rosenfeld, P.E.** (2008). A Statistical Analysis Of Attic Dust And Blood Lipid Concentrations Of Tetrachloro-p-Dibenzodioxin (TCDD) Toxicity Equivalency Quotients (TEQ) In Two Populations Near Wood Treatment Facilities. *Organohalogen Compounds*, 70, 002252-002255.

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Hensley, A.R. A. Scott, J. J. J. Clark, **Rosenfeld, P.E.** (2007). Attic Dust and Human Blood Samples Collected near a Former Wood Treatment Facility. *Environmental Research*. 105, 194-197.

Rosenfeld, P.E., J. J. J. Clark, A. R. Hensley, M. Suffet. (2007). The Use of an Odor Wheel Classification for Evaluation of Human Health Risk Criteria for Compost Facilities. *Water Science & Technology* 55(5), 345-357.

Rosenfeld, P. E., M. Suffet. (2007). The Anatomy Of Odour Wheels For Odours Of Drinking Water, Wastewater, Compost And The Urban Environment. *Water Science & Technology* 55(5), 335-344.

Sullivan, P. J. Clark, J.J.J., Agardy, F. J., **Rosenfeld, P.E.** (2007). *Toxic Legacy, Synthetic Toxins in the Food, Water, and Air in American Cities.* Boston Massachusetts: Elsevier Publishing

Rosenfeld, P.E., and Suffet I.H. (2004). Control of Compost Odor Using High Carbon Wood Ash. *Water Science and Technology*. 49(9),171-178.

Rosenfeld P. E., J.J. Clark, I.H. (Mel) Suffet (2004). The Value of An Odor-Quality-Wheel Classification Scheme For The Urban Environment. *Water Environment Federation's Technical Exhibition and Conference (WEFTEC) 2004.* New Orleans, October 2-6, 2004.

Rosenfeld, P.E., and Suffet, I.H. (2004). Understanding Odorants Associated With Compost, Biomass Facilities, and the Land Application of Biosolids. *Water Science and Technology*. 49(9), 193-199.

Rosenfeld, P.E., and Suffet I.H. (2004). Control of Compost Odor Using High Carbon Wood Ash, *Water Science and Technology*, 49(9), 171-178.

Rosenfeld, P. E., Grey, M. A., Sellew, P. (2004). Measurement of Biosolids Odor and Odorant Emissions from Windrows, Static Pile and Biofilter. *Water Environment Research*. 76(4), 310-315.

Rosenfeld, P.E., Grey, M and Suffet, M. (2002). Compost Demonstration Project, Sacramento California Using High-Carbon Wood Ash to Control Odor at a Green Materials Composting Facility. *Integrated Waste Management Board Public Affairs Office*, Publications Clearinghouse (MS–6), Sacramento, CA Publication #442-02-008.

Rosenfeld, P.E., and C.L. Henry. (2001). Characterization of odor emissions from three different biosolids. *Water Soil and Air Pollution*. 127(1-4), 173-191.

Rosenfeld, P.E., and Henry C. L., (2000). Wood ash control of odor emissions from biosolids application. *Journal of Environmental Quality.* 29, 1662-1668.

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Chollack, T. and **P. Rosenfeld. (**1998). Compost Amendment Handbook For Landscaping. Prepared for and distributed by the City of Redmond, Washington State.

Rosenfeld, P. E. (1992). The Mount Liamuiga Crater Trail. *Heritage Magazine of St. Kitts*, 3(2).

Rosenfeld, P. E. (1993). High School Biogas Project to Prevent Deforestation On St. Kitts. *Biomass Users Network*, 7(1).

Rosenfeld, P. E. (1998). Characterization, Quantification, and Control of Odor Emissions From Biosolids Application To Forest Soil. Doctoral Thesis. University of Washington College of Forest Resources.

Rosenfeld, P. E. (1994). Potential Utilization of Small Diameter Trees on Sierra County Public Land. Masters thesis reprinted by the Sierra County Economic Council. Sierra County, California.

Rosenfeld, P. E. (1991). How to Build a Small Rural Anaerobic Digester & Uses Of Biogas In The First And Third World. Bachelors Thesis. University of California.

Presentations:

Rosenfeld, P.E., Sutherland, A; Hesse, R.; Zapata, A. (October 3-6, 2013). Air dispersion modeling of volatile organic emissions from multiple natural gas wells in Decatur, TX. *44th Western Regional Meeting, American Chemical Society.* Lecture conducted from Santa Clara, CA.

Sok, H.L.; Waller, C.C.; Feng, L.; Gonzalez, J.; Sutherland, A.J.; Wisdom-Stack, T.; Sahai, R.K.; Hesse, R.C.; **Rosenfeld, P.E.** (June 20-23, 2010). Atrazine: A Persistent Pesticide in Urban Drinking Water. *Urban Environmental Pollution*. Lecture conducted from Boston, MA.

Feng, L.; Gonzalez, J.; Sok, H.L.; Sutherland, A.J.; Waller, C.C.; Wisdom-Stack, T.; Sahai, R.K.; La, M.; Hesse, R.C.; **Rosenfeld, P.E.** (June 20-23, 2010). Bringing Environmental Justice to East St. Louis, Illinois. *Urban Environmental Pollution.* Lecture conducted from Boston, MA.

Rosenfeld, P.E. (April 19-23, 2009). Perfluoroctanoic Acid (PFOA) and Perfluoroactane Sulfonate (PFOS) Contamination in Drinking Water From the Use of Aqueous Film Forming Foams (AFFF) at Airports in the United States. *2009 Ground Water Summit and 2009 Ground Water Protection Council Spring Meeting*, Lecture conducted from Tuscon, AZ.

Rosenfeld, P.E. (April 19-23, 2009). Cost to Filter Atrazine Contamination from Drinking Water in the United States" Contamination in Drinking Water From the Use of Aqueous Film Forming Foams (AFFF) at Airports in the United States. *2009 Ground Water Summit and 2009 Ground Water Protection Council Spring Meeting*. Lecture conducted from Tuscon, AZ.

Wu, C., Tam, L., Clark, J., **Rosenfeld, P**. (20-22 July, 2009). Dioxin and furan blood lipid concentrations in populations living near four wood treatment facilities in the United States. Brebbia, C.A. and Popov, V., eds., *Air Pollution XVII: Proceedings of the Seventeenth International Conference on Modeling, Monitoring and Management of Air Pollution*. Lecture conducted from Tallinn, Estonia.

Rosenfeld, P. E. (October 15-18, 2007). Moss Point Community Exposure To Contaminants From A Releasing Facility. *The 23rd Annual International Conferences on Soils Sediment and Water.* Platform lecture conducted from University of Massachusetts, Amherst MA.

Rosenfeld, P. E. (October 15-18, 2007). The Repeated Trespass of Tritium-Contaminated Water Into A Surrounding Community Form Repeated Waste Spills From A Nuclear Power Plant. *The 23rd Annual International Conferences on Soils Sediment and Water*. Platform lecture conducted from University of Massachusetts, Amherst MA.

Rosenfeld, P. E. (October 15-18, 2007). Somerville Community Exposure To Contaminants From Wood Treatment Facility Emissions. The *23rd Annual International Conferences on Soils Sediment and Water*. Lecture conducted from University of Massachusetts, Amherst MA.

Rosenfeld P. E. (March 2007). Production, Chemical Properties, Toxicology, & Treatment Case Studies of 1,2,3-Trichloropropane (TCP). *The Association for Environmental Health and Sciences (AEHS) Annual Meeting*. Lecture conducted from San Diego, CA.

Rosenfeld P. E. (March 2007). Blood and Attic Sampling for Dioxin/Furan, PAH, and Metal Exposure in Florala, Alabama. *The AEHS Annual Meeting.* Lecture conducted from San Diego, CA.

Hensley A.R., Scott, A., **Rosenfeld P.E.,** Clark, J.J.J. (August 21 – 25, 2006). Dioxin Containing Attic Dust And Human Blood Samples Collected Near A Former Wood Treatment Facility. *The 26th International Symposium on Halogenated Persistent Organic Pollutants – DIOXIN2006*. Lecture conducted from Radisson SAS Scandinavia Hotel in Oslo Norway.

Hensley A.R., Scott, A., **Rosenfeld P.E.,** Clark, J.J.J. (November 4-8, 2006). Dioxin Containing Attic Dust And Human Blood Samples Collected Near A Former Wood Treatment Facility. *APHA 134 Annual Meeting & Exposition.* Lecture conducted from Boston Massachusetts.

Paul Rosenfeld Ph.D. (October 24-25, 2005). Fate, Transport and Persistence of PFOA and Related Chemicals. Mealey's C8/PFOA. *Science, Risk & Litigation Conference.* Lecture conducted from The Rittenhouse Hotel, Philadelphia, PA.

Paul Rosenfeld Ph.D. (September 19, 2005). Brominated Flame Retardants in Groundwater: Pathways to Human Ingestion, *Toxicology and Remediation PEMA Emerging Contaminant Conference*. Lecture conducted from Hilton Hotel, Irvine California.

Paul Rosenfeld Ph.D. (September 19, 2005). Fate, Transport, Toxicity, And Persistence of 1,2,3-TCP. *PEMA Emerging Contaminant Conference.* Lecture conducted from Hilton Hotel in Irvine, California.

Paul Rosenfeld Ph.D. (September 26-27, 2005). Fate, Transport and Persistence of PDBEs. *Mealey's Groundwater Conference.* Lecture conducted from Ritz Carlton Hotel, Marina Del Ray, California.

Paul Rosenfeld Ph.D. (June 7-8, 2005). Fate, Transport and Persistence of PFOA and Related Chemicals. *International Society of Environmental Forensics: Focus On Emerging Contaminants*. Lecture conducted from Sheraton Oceanfront Hotel, Virginia Beach, Virginia.

Paul Rosenfeld Ph.D. (July 21-22, 2005). Fate Transport, Persistence and Toxicology of PFOA and Related Perfluorochemicals. *2005 National Groundwater Association Ground Water And Environmental Law Conference*. Lecture conducted from Wyndham Baltimore Inner Harbor, Baltimore Maryland.

Paul Rosenfeld Ph.D. (July 21-22, 2005). Brominated Flame Retardants in Groundwater: Pathways to Human Ingestion, Toxicology and Remediation. *2005 National Groundwater Association Ground Water and Environmental Law Conference.* Lecture conducted from Wyndham Baltimore Inner Harbor, Baltimore Maryland.

Paul Rosenfeld, Ph.D. and James Clark Ph.D. and Rob Hesse R.G. (May 5-6, 2004). Tert-butyl Alcohol Liability and Toxicology, A National Problem and Unquantified Liability. *National Groundwater Association. Environmental Law Conference*. Lecture conducted from Congress Plaza Hotel, Chicago Illinois.

Paul Rosenfeld, Ph.D. (March 2004). Perchlorate Toxicology. *Meeting of the American Groundwater Trust*. Lecture conducted from Phoenix Arizona.

Hagemann, M.F., **Paul Rosenfeld, Ph.D.** and Rob Hesse (2004). Perchlorate Contamination of the Colorado River. *Meeting of tribal representatives*. Lecture conducted from Parker, AZ.

Paul Rosenfeld, Ph.D. (April 7, 2004). A National Damage Assessment Model For PCE and Dry Cleaners. *Drycleaner Symposium. California Ground Water Association*. Lecture conducted from Radison Hotel, Sacramento, California.

Rosenfeld, P. E., Grey, M., (June 2003) Two stage biofilter for biosolids composting odor control. *Seventh International In Situ And On Site Bioremediation Symposium Battelle Conference* Orlando, FL.

Paul Rosenfeld, Ph.D. and James Clark Ph.D. (February 20-21, 2003) Understanding Historical Use, Chemical Properties, Toxicity and Regulatory Guidance of 1,4 Dioxane. *National Groundwater Association. Southwest Focus Conference. Water Supply and Emerging Contaminants*.. Lecture conducted from Hyatt Regency Phoenix Arizona.

Paul Rosenfeld, Ph.D. (February 6-7, 2003). Underground Storage Tank Litigation and Remediation. *California CUPA Forum*. Lecture conducted from Marriott Hotel, Anaheim California.

Paul Rosenfeld, Ph.D. (October 23, 2002) Underground Storage Tank Litigation and Remediation. *EPA Underground Storage Tank Roundtable*. Lecture conducted from Sacramento California.

Rosenfeld, P.E. and Suffet, M. (October 7- 10, 2002). Understanding Odor from Compost, *Wastewater and Industrial Processes. Sixth Annual Symposium On Off Flavors in the Aquatic Environment. International Water Association*. Lecture conducted from Barcelona Spain.

Rosenfeld, P.E. and Suffet, M. (October 7- 10, 2002). Using High Carbon Wood Ash to Control Compost Odor. *Sixth Annual Symposium On Off Flavors in the Aquatic Environment. International Water Association*. Lecture conducted from Barcelona Spain.

Rosenfeld, P.E. and Grey, M. A. (September 22-24, 2002). Biocycle Composting For Coastal Sage Restoration. *Northwest Biosolids Management Association*. Lecture conducted from Vancouver Washington..

Rosenfeld, P.E. and Grey, M. A. (November 11-14, 2002). Using High-Carbon Wood Ash to Control Odor at a Green Materials Composting Facility. *Soil Science Society Annual Conferenc*e. Lecture conducted from Indianapolis, Maryland.

Rosenfeld. P.E. (September 16, 2000). Two stage biofilter for biosolids composting odor control. *Water Environment Federation.* Lecture conducted from Anaheim California.

Rosenfeld. P.E. (October 16, 2000). Wood ash and biofilter control of compost odor. *Biofest.* Lecture conducted from Ocean Shores, California.

Rosenfeld, P.E. (2000). Bioremediation Using Organic Soil Amendments. *California Resource Recovery Association*. Lecture conducted from Sacramento California.

Rosenfeld, P.E., C.L. Henry, R. Harrison. (1998). Oat and Grass Seed Germination and Nitrogen and Sulfur Emissions Following Biosolids Incorporation With High-Carbon Wood-Ash. *Water Environment Federation 12th Annual Residuals and Biosolids Management Conference Proceedings*. Lecture conducted from Bellevue Washington.

Rosenfeld, P.E., and C.L. Henry. (1999). An evaluation of ash incorporation with biosolids for odor reduction. *Soil Science Society of America*. Lecture conducted from Salt Lake City Utah.

Rosenfeld, P.E., C.L. Henry, R. Harrison. (1998). Comparison of Microbial Activity and Odor Emissions from Three Different Biosolids Applied to Forest Soil. *Brown and Caldwell.* Lecture conducted from Seattle Washington.

Rosenfeld, P.E., C.L. Henry. (1998). Characterization, Quantification, and Control of Odor Emissions from Biosolids Application To Forest Soil. *Biofest.* Lecture conducted from Lake Chelan, Washington.

Rosenfeld, P.E, C.L. Henry, R. Harrison. (1998). Oat and Grass Seed Germination and Nitrogen and Sulfur Emissions Following Biosolids Incorporation With High-Carbon Wood-Ash. Water Environment Federation 12th Annual Residuals and Biosolids Management Conference Proceedings. Lecture conducted from Bellevue Washington.

Rosenfeld, P.E., C.L. Henry, R. B. Harrison, and R. Dills. (1997). Comparison of Odor Emissions From Three Different Biosolids Applied to Forest Soil. *Soil Science Society of America*. Lecture conducted from Anaheim California.

Teaching Experience:

UCLA Department of Environmental Health (Summer 2003 through 20010) Taught Environmental Health Science 100 to students, including undergrad, medical doctors, public health professionals and nurses. Course focused on the health effects of environmental contaminants.

National Ground Water Association, Successful Remediation Technologies. Custom Course in Sante Fe, New Mexico. May 21, 2002. Focused on fate and transport of fuel contaminants associated with underground storage tanks.

National Ground Water Association; Successful Remediation Technologies Course in Chicago Illinois. April 1, 2002. Focused on fate and transport of contaminants associated with Superfund and RCRA sites.

California Integrated Waste Management Board, April and May, 2001. Alternative Landfill Caps Seminar in San Diego, Ventura, and San Francisco. Focused on both prescriptive and innovative landfill cover design.

UCLA Department of Environmental Engineering, February 5, 2002. Seminar on Successful Remediation Technologies focusing on Groundwater Remediation.

University Of Washington, Soil Science Program, Teaching Assistant for several courses including: Soil Chemistry, Organic Soil Amendments, and Soil Stability.

U.C. Berkeley, Environmental Science Program Teaching Assistant for Environmental Science 10.

Academic Grants Awarded:

California Integrated Waste Management Board. $41,000 grant awarded to UCLA Institute of the Environment. Goal: To investigate effect of high carbon wood ash on volatile organic emissions from compost. 2001.

Synagro Technologies, Corona California: $10,000 grant awarded to San Diego State University.
Goal: investigate effect of biosolids for restoration and remediation of degraded coastal sage soils. 2000.

King County, Department of Research and Technology, Washington State. $100,000 grant awarded to University of Washington: Goal: To investigate odor emissions from biosolids application and the effect of polymers and ash on VOC emissions. 1998.

Northwest Biosolids Management Association, Washington State. $20,000 grant awarded to investigate effect of polymers and ash on VOC emissions from biosolids. 1997.

James River Corporation, Oregon: $10,000 grant was awarded to investigate the success of genetically engineered Poplar trees with resistance to round-up. 1996.

United State Forest Service, Tahoe National Forest: $15,000 grant was awarded to investigating fire ecology of the Tahoe National Forest. 1995.

Kellogg Foundation, Washington D.C. $500 grant was awarded to construct a large anaerobic digester on St. Kitts in West Indies. 1993

Deposition and/or Trial Testimony:

In the United States District Court For The District of New Jersey
Duarte et al, *Plaintiffs,* vs. United States Metals Refining Company et. al. *Defendant.*
Case No.: 2:17-cv-01624-ES-SCM
Rosenfeld Deposition. 6-7-2019

In the United States District Court of Southern District of Texas Galveston Division
M/T Carla Maersk, *Plaintiffs,* vs. Conti 168., Schiffahrts-GMBH & Co. Bulker KG MS "Conti Perdido" *Defendant.*
Case No.: 3:15-CV-00106 consolidated with 3:15-CV-00237
Rosenfeld Deposition. 5-9-2019

In The Superior Court of the State of California In And For The County Of Los Angeles – Santa Monica
Carole-Taddeo-Bates et al., vs. Ifran Khan et al., Defendants
Case No.: No. BC615636
Rosenfeld Deposition, 1-26-2019

In The Superior Court of the State of California In And For The County Of Los Angeles – Santa Monica
The San Gabriel Valley Council of Governments et al. vs El Adobe Apts. Inc. et al., Defendants
Case No.: No. BC646857
Rosenfeld Deposition, 10-6-2018; Trial 3-7-19

In United States District Court For The District of Colorado
Bells et al. Plaintiff vs. The 3M Company et al., Defendants
Case: No 1:16-cv-02531-RBJ
Rosenfeld Deposition, 3-15-2018 and 4-3-2018

In The District Court Of Regan County, Texas, 112th Judicial District
Phillip Bales et al., Plaintiff vs. Dow Agrosciences, LLC, et al., Defendants
Cause No 1923
Rosenfeld Deposition, 11-17-2017

In The Superior Court of the State of California In And For The County Of Contra Costa
Simons et al., Plaintiffs vs. Chevron Corporation, et al., Defendants
Cause No C12-01481
Rosenfeld Deposition, 11-20-2017

In The Circuit Court Of The Twentieth Judicial Circuit, St Clair County, Illinois
Martha Custer et al., Plaintiff vs. Cerro Flow Products, Inc., Defendants
Case No.: No. 0i9-L-2295
Rosenfeld Deposition, 8-23-2017

In The Superior Court of the State of California, For The County of Los Angeles
Warrn Gilbert and Penny Gilber, Plaintiff vs. BMW of North America LLC
Case No.: LC102019 (c/w BC582154)
Rosenfeld Deposition, 8-16-2017, Trail 8-28-2018

In the Northern District Court of Mississippi, Greenville Division
Brenda J. Cooper, et al., *Plaintiffs,* vs. Meritor Inc., et al., *Defendants*
Case Number: 4:16-cv-52-DMB-JVM
Rosenfeld Deposition: July 2017

In The Superior Court of the State of Washington, County of Snohomish
Michael Davis and Julie Davis et al., Plaintiff vs. Cedar Grove Composting Inc., Defendants
Case No.: No. 13-2-03987-5
Rosenfeld Deposition, February 2017
Trial, March 2017

In The Superior Court of the State of California, County of Alameda
Charles Spain., Plaintiff vs. Thermo Fisher Scientific, et al., Defendants
Case No.: RG14711115
Rosenfeld Deposition, September 2015

In The Iowa District Court In And For Poweshiek County
Russell D. Winburn, et al., Plaintiffs vs. Doug Hoksbergen, et al., Defendants
Case No.: LALA002187
Rosenfeld Deposition, August 2015

In The Iowa District Court For Wapello County
Jerry Dovico, et al., Plaintiffs vs. Valley View Sine LLC, et al., Defendants
Law No,: LALA105144 - Division A
Rosenfeld Deposition, August 2015

In The Iowa District Court For Wapello County
Doug Pauls, et al.,, et al., Plaintiffs vs. Richard Warren, et al., Defendants
Law No,: LALA105144 - Division A
Rosenfeld Deposition, August 2015

In The Circuit Court of Ohio County, West Virginia
Robert Andrews, et al. v. Antero, et al.
Civil Action N0. 14-C-30000
Rosenfeld Deposition, June 2015

In The Third Judicial District County of Dona Ana, New Mexico
Betty Gonzalez, et al. Plaintiffs vs. Del Oro Dairy, Del Oro Real Estate LLC, Jerry Settles and Deward DeRuyter, Defendants
Rosenfeld Deposition: July 2015

In The Iowa District Court For Muscatine County
Laurie Freeman et. al. Plaintiffs vs. Grain Processing Corporation, Defendant
Case No 4980
Rosenfeld Deposition: May 2015

In the Circuit Court of the 17th Judicial Circuit, in and For Broward County, Florida
Walter Hinton, et. al. Plaintiff, vs. City of Fort Lauderdale, Florida, a Municipality, Defendant.
Case Number CACE07030358 (26)
Rosenfeld Deposition: December 2014

In the United States District Court Western District of Oklahoma
Tommy McCarty, et al., Plaintiffs, v. Oklahoma City Landfill, LLC d/b/a Southeast Oklahoma City Landfill, et al. Defendants.
Case No. 5:12-cv-01152-C
Rosenfeld Deposition: July 2014

In the County Court of Dallas County Texas
Lisa Parr et al, *Plaintiff*, vs. Aruba et al, *Defendant.*
Case Number cc-11-01650-E
Rosenfeld Deposition: March and September 2013
Rosenfeld Trial: April 2014

In the Court of Common Pleas of Tuscarawas County Ohio
John Michael Abicht, et al., *Plaintiffs,* vs. Republic Services, Inc., et al., *Defendants*
Case Number: 2008 CT 10 0741 (Cons. w/ 2009 CV 10 0987)
Rosenfeld Deposition: October 2012

In the United States District Court of Southern District of Texas Galveston Division
Kyle Cannon, Eugene Donovan, Genaro Ramirez, Carol Sassler, and Harvey Walton, each Individually and on behalf of those similarly situated, *Plaintiffs,* vs. BP Products North America, Inc., *Defendant.*
Case 3:10-cv-00622
Rosenfeld Deposition: February 2012
Rosenfeld Trial: April 2013

In the Circuit Court of Baltimore County Maryland
Philip E. Cvach, II et al., *Plaintiffs* vs. Two Farms, Inc. d/b/a Royal Farms, Defendants
Case Number: 03-C-12-012487 OT
Rosenfeld Deposition: September 2013

EXHIBIT C

SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

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Santa Monica, California 90401
Tel: (949) 887-9013
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Matthew F. Hagemann, P.G., C.Hg., QSD, QSP

Geologic and Hydrogeologic Characterization
Industrial Stormwater Compliance
Investigation and Remediation Strategies
Litigation Support and Testifying Expert
CEQA Review

Education:

M.S. Degree, Geology, California State University Los Angeles, Los Angeles, CA, 1984.
B.A. Degree, Geology, Humboldt State University, Arcata, CA, 1982.

Professional Certifications:

California Professional Geologist
California Certified Hydrogeologist
Qualified SWPPP Developer and Practitioner

Professional Experience:

Matt has 25 years of experience in environmental policy, assessment and remediation. He spent nine years with the U.S. EPA in the RCRA and Superfund programs and served as EPA's Senior Science Policy Advisor in the Western Regional Office where he identified emerging threats to groundwater from perchlorate and MTBE. While with EPA, Matt also served as a Senior Hydrogeologist in the oversight of the assessment of seven major military facilities undergoing base closure. He led numerous enforcement actions under provisions of the Resource Conservation and Recovery Act (RCRA) while also working with permit holders to improve hydrogeologic characterization and water quality monitoring.

Matt has worked closely with U.S. EPA legal counsel and the technical staff of several states in the application and enforcement of RCRA, Safe Drinking Water Act and Clean Water Act regulations. Matt has trained the technical staff in the States of California, Hawaii, Nevada, Arizona and the Territory of Guam in the conduct of investigations, groundwater fundamentals, and sampling techniques.

Positions Matt has held include:

- Founding Partner, Soil/Water/Air Protection Enterprise (SWAPE) (2003 – present);
- Geology Instructor, Golden West College, 2010 – 2014;
- Senior Environmental Analyst, Komex H2O Science, Inc. (2000 -- 2003);

- Executive Director, Orange Coast Watch (2001 – 2004);
- Senior Science Policy Advisor and Hydrogeologist, U.S. Environmental Protection Agency (1989–1998);
- Hydrogeologist, National Park Service, Water Resources Division (1998 – 2000);
- Adjunct Faculty Member, San Francisco State University, Department of Geosciences (1993 – 1998);
- Instructor, College of Marin, Department of Science (1990 – 1995);
- Geologist, U.S. Forest Service (1986 – 1998); and
- Geologist, Dames & Moore (1984 – 1986).

Senior Regulatory and Litigation Support Analyst:

With SWAPE, Matt's responsibilities have included:

- Lead analyst and testifying expert in the review of over 100 environmental impact reports since 2003 under CEQA that identify significant issues with regard to hazardous waste, water resources, water quality, air quality, Valley Fever, greenhouse gas emissions, and geologic hazards. Make recommendations for additional mitigation measures to lead agencies at the local and county level to include additional characterization of health risks and implementation of protective measures to reduce worker exposure to hazards from toxins and Valley Fever.
- Stormwater analysis, sampling and best management practice evaluation at industrial facilities.
- Manager of a project to provide technical assistance to a community adjacent to a former Naval shipyard under a grant from the U.S. EPA.
- Technical assistance and litigation support for vapor intrusion concerns.
- Lead analyst and testifying expert in the review of environmental issues in license applications for large solar power plants before the California Energy Commission.
- Manager of a project to evaluate numerous formerly used military sites in the western U.S.
- Manager of a comprehensive evaluation of potential sources of perchlorate contamination in Southern California drinking water wells.
- Manager and designated expert for litigation support under provisions of Proposition 65 in the review of releases of gasoline to sources drinking water at major refineries and hundreds of gas stations throughout California.
- Expert witness on two cases involving MTBE litigation.
- Expert witness and litigation support on the impact of air toxins and hazards at a school.
- Expert witness in litigation at a former plywood plant.

With Komex H2O Science Inc., Matt's duties included the following:

- Senior author of a report on the extent of perchlorate contamination that was used in testimony by the former U.S. EPA Administrator and General Counsel.
- Senior researcher in the development of a comprehensive, electronically interactive chronology of MTBE use, research, and regulation.
- Senior researcher in the development of a comprehensive, electronically interactive chronology of perchlorate use, research, and regulation.
- Senior researcher in a study that estimates nationwide costs for MTBE remediation and drinking water treatment, results of which were published in newspapers nationwide and in testimony against provisions of an energy bill that would limit liability for oil companies.
- Research to support litigation to restore drinking water supplies that have been contaminated by MTBE in California and New York.

- Expert witness testimony in a case of oil production-related contamination in Mississippi.
- Lead author for a multi-volume remedial investigation report for an operating school in Los Angeles that met strict regulatory requirements and rigorous deadlines.

- Development of strategic approaches for cleanup of contaminated sites in consultation with clients and regulators.

Executive Director:

As Executive Director with Orange Coast Watch, Matt led efforts to restore water quality at Orange County beaches from multiple sources of contamination including urban runoff and the discharge of wastewater. In reporting to a Board of Directors that included representatives from leading Orange County universities and businesses, Matt prepared issue papers in the areas of treatment and disinfection of wastewater and control of the discharge of grease to sewer systems. Matt actively participated in the development of countywide water quality permits for the control of urban runoff and permits for the discharge of wastewater. Matt worked with other nonprofits to protect and restore water quality, including Surfrider, Natural Resources Defense Council and Orange County CoastKeeper as well as with business institutions including the Orange County Business Council.

Hydrogeology:

As a Senior Hydrogeologist with the U.S. Environmental Protection Agency, Matt led investigations to characterize and cleanup closing military bases, including Mare Island Naval Shipyard, Hunters Point Naval Shipyard, Treasure Island Naval Station, Alameda Naval Station, Moffett Field, Mather Army Airfield, and Sacramento Army Depot. Specific activities were as follows:

- Led efforts to model groundwater flow and contaminant transport, ensured adequacy of monitoring networks, and assessed cleanup alternatives for contaminated sediment, soil, and groundwater.
- Initiated a regional program for evaluation of groundwater sampling practices and laboratory analysis at military bases.
- Identified emerging issues, wrote technical guidance, and assisted in policy and regulation development through work on four national U.S. EPA workgroups, including the Superfund Groundwater Technical Forum and the Federal Facilities Forum.

At the request of the State of Hawaii, Matt developed a methodology to determine the vulnerability of groundwater to contamination on the islands of Maui and Oahu. He used analytical models and a GIS to show zones of vulnerability, and the results were adopted and published by the State of Hawaii and County of Maui.

As a hydrogeologist with the EPA Groundwater Protection Section, Matt worked with provisions of the Safe Drinking Water Act and NEPA to prevent drinking water contamination. Specific activities included the following:

- Received an EPA Bronze Medal for his contribution to the development of national guidance for the protection of drinking water.
- Managed the Sole Source Aquifer Program and protected the drinking water of two communities through designation under the Safe Drinking Water Act. He prepared geologic reports, conducted public hearings, and responded to public comments from residents who were very concerned about the impact of designation.

- Reviewed a number of Environmental Impact Statements for planned major developments, including large hazardous and solid waste disposal facilities, mine reclamation, and water transfer.

Matt served as a hydrogeologist with the RCRA Hazardous Waste program. Duties were as follows:

- Supervised the hydrogeologic investigation of hazardous waste sites to determine compliance with Subtitle C requirements.
- Reviewed and wrote "part B" permits for the disposal of hazardous waste.
- Conducted RCRA Corrective Action investigations of waste sites and led inspections that formed the basis for significant enforcement actions that were developed in close coordination with U.S. EPA legal counsel.
- Wrote contract specifications and supervised contractor's investigations of waste sites.

With the National Park Service, Matt directed service-wide investigations of contaminant sources to prevent degradation of water quality, including the following tasks:

- Applied pertinent laws and regulations including CERCLA, RCRA, NEPA, NRDA, and the Clean Water Act to control military, mining, and landfill contaminants.
- Conducted watershed-scale investigations of contaminants at parks, including Yellowstone and Olympic National Park.
- Identified high-levels of perchlorate in soil adjacent to a national park in New Mexico and advised park superintendent on appropriate response actions under CERCLA.
- Served as a Park Service representative on the Interagency Perchlorate Steering Committee, a national workgroup.
- Developed a program to conduct environmental compliance audits of all National Parks while serving on a national workgroup.
- Co-authored two papers on the potential for water contamination from the operation of personal watercraft and snowmobiles, these papers serving as the basis for the development of nation-wide policy on the use of these vehicles in National Parks.
- Contributed to the Federal Multi-Agency Source Water Agreement under the Clean Water Action Plan.

Policy:

Served senior management as the Senior Science Policy Advisor with the U.S. Environmental Protection Agency, Region 9. Activities included the following:

- Advised the Regional Administrator and senior management on emerging issues such as the potential for the gasoline additive MTBE and ammonium perchlorate to contaminate drinking water supplies.
- Shaped EPA's national response to these threats by serving on workgroups and by contributing to guidance, including the Office of Research and Development publication, Oxygenates in Water: Critical Information and Research Needs.
- Improved the technical training of EPA's scientific and engineering staff.
- Earned an EPA Bronze Medal for representing the region's 300 scientists and engineers in negotiations with the Administrator and senior management to better integrate scientific principles into the policy-making process.
- Established national protocol for the peer review of scientific documents.

Geology:

With the U.S. Forest Service, Matt led investigations to determine hillslope stability of areas proposed for timber harvest in the central Oregon Coast Range. Specific activities were as follows:

- Mapped geology in the field, and used aerial photographic interpretation and mathematical models to determine slope stability.
- Coordinated his research with community members who were concerned with natural resource protection.
- Characterized the geology of an aquifer that serves as the sole source of drinking water for the city of Medford, Oregon.

As a consultant with Dames and Moore, Matt led geologic investigations of two contaminated sites (later listed on the Superfund NPL) in the Portland, Oregon, area and a large hazardous waste site in eastern Oregon. Duties included the following:

- Supervised year-long effort for soil and groundwater sampling.
- Conducted aquifer tests.
- Investigated active faults beneath sites proposed for hazardous waste disposal.

Teaching:

From 1990 to 1998, Matt taught at least one course per semester at the community college and university levels:

- At San Francisco State University, held an adjunct faculty position and taught courses in environmental geology, oceanography (lab and lecture), hydrogeology, and groundwater contamination.
- Served as a committee member for graduate and undergraduate students.
- Taught courses in environmental geology and oceanography at the College of Marin.

Matt taught physical geology (lecture and lab and introductory geology at Golden West College in Huntington Beach, California from 2010 to 2014.

Invited Testimony, Reports, Papers and Presentations:

Hagemann, M.F., 2008. Disclosure of Hazardous Waste Issues under CEQA. Presentation to the Public Environmental Law Conference, Eugene, Oregon.

Hagemann, M.F., 2008. Disclosure of Hazardous Waste Issues under CEQA. Invited presentation to U.S. EPA Region 9, San Francisco, California.

Hagemann, M.F., 2005. Use of Electronic Databases in Environmental Regulation, Policy Making and Public Participation. Brownfields 2005, Denver, Coloradao.

Hagemann, M.F., 2004. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in Nevada and the Southwestern U.S. Presentation to a meeting of the American Groundwater Trust, Las Vegas, NV (served on conference organizing committee).

Hagemann, M.F., 2004. Invited testimony to a California Senate committee hearing on air toxins at schools in Southern California, Los Angeles.

Brown, A., Farrow, J., Gray, A. and **Hagemann, M.**, 2004. An Estimate of Costs to Address MTBE Releases from Underground Storage Tanks and the Resulting Impact to Drinking Water Wells. Presentation to the Ground Water and Environmental Law Conference, National Groundwater Association.

Hagemann, M.F., 2004. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in Arizona and the Southwestern U.S. Presentation to a meeting of the American Groundwater Trust, Phoenix, AZ (served on conference organizing committee).

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in the Southwestern U.S. Invited presentation to a special committee meeting of the National Academy of Sciences, Irvine, CA.

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River. Invited presentation to a tribal EPA meeting, Pechanga, CA.

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River. Invited presentation to a meeting of tribal repesentatives, Parker, AZ.

Hagemann, M.F., 2003. Impact of Perchlorate on the Colorado River and Associated Drinking Water Supplies. Invited presentation to the Inter-Tribal Meeting, Torres Martinez Tribe.

Hagemann, M.F., 2003. The Emergence of Perchlorate as a Widespread Drinking Water Contaminant. Invited presentation to the U.S. EPA Region 9.

Hagemann, M.F., 2003. A Deductive Approach to the Assessment of Perchlorate Contamination. Invited presentation to the California Assembly Natural Resources Committee.

Hagemann, M.F., 2003. Perchlorate: A Cold War Legacy in Drinking Water. Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. From Tank to Tap: A Chronology of MTBE in Groundwater. Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. A Chronology of MTBE in Groundwater and an Estimate of Costs to Address Impacts to Groundwater. Presentation to the annual meeting of the Society of Environmental Journalists.

Hagemann, M.F., 2002. An Estimate of the Cost to Address MTBE Contamination in Groundwater (and Who Will Pay). Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. An Estimate of Costs to Address MTBE Releases from Underground Storage Tanks and the Resulting Impact to Drinking Water Wells. Presentation to a meeting of the U.S. EPA and State Underground Storage Tank Program managers.

Hagemann, M.F., 2001. From Tank to Tap: A Chronology of MTBE in Groundwater. Unpublished report.

Hagemann, M.F., 2001. Estimated Cleanup Cost for MTBE in Groundwater Used as Drinking Water. Unpublished report.

Hagemann, M.F., 2001. Estimated Costs to Address MTBE Releases from Leaking Underground Storage Tanks. Unpublished report.

Hagemann, M.F., and VanMouwerik, M., 1999. Potential Water Quality Concerns Related to Snowmobile Usage. Water Resources Division, National Park Service, Technical Report.

VanMouwerik, M. and **Hagemann, M.F**. 1999, Water Quality Concerns Related to Personal Watercraft Usage. Water Resources Division, National Park Service, Technical Report.

Hagemann, M.F., 1999, Is Dilution the Solution to Pollution in National Parks? The George Wright Society Biannual Meeting, Asheville, North Carolina.

Hagemann, M.F., 1997, The Potential for MTBE to Contaminate Groundwater. U.S. EPA Superfund Groundwater Technical Forum Annual Meeting, Las Vegas, Nevada.

Hagemann, M.F., and Gill, M., 1996, Impediments to Intrinsic Remediation, Moffett Field Naval Air Station, Conference on Intrinsic Remediation of Chlorinated Hydrocarbons, Salt Lake City.

Hagemann, M.F., Fukunaga, G.L., 1996, The Vulnerability of Groundwater to Anthropogenic Contaminants on the Island of Maui, Hawaii. Hawaii Water Works Association Annual Meeting, Maui, October 1996.

Hagemann, M. F., Fukanaga, G. L., 1996, Ranking Groundwater Vulnerability in Central Oahu, Hawaii. Proceedings, Geographic Information Systems in Environmental Resources Management, Air and Waste Management Association Publication VIP-61.

Hagemann, M.F., 1994. Groundwater Characterization and Cleanup at Closing Military Bases in California. Proceedings, California Groundwater Resources Association Meeting.

Hagemann, M.F. and Sabol, M.A., 1993. Role of the U.S. EPA in the High Plains States Groundwater Recharge Demonstration Program. Proceedings, Sixth Biennial Symposium on the Artificial Recharge of Groundwater.

Hagemann, M.F., 1993. U.S. EPA Policy on the Technical Impracticability of the Cleanup of DNAPL-contaminated Groundwater. California Groundwater Resources Association Meeting.

Hagemann, M.F., 1992. Dense Nonaqueous Phase Liquid Contamination of Groundwater: An Ounce of Prevention... Proceedings, Association of Engineering Geologists Annual Meeting, v. 35.

Other Experience:

Selected as subject matter expert for the California Professional Geologist licensing examination, 2009-2011.

Appendix B

Air Quality, Energy, and Greenhouse Gas Emissions Modeling

Temecula Hospital SEIR Construction - Phase 2 - South Coast AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Temecula Hospital SEIR Construction - Phase 2

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Hospital	102.00	1000sqft	2.34	102,000.00	0
Parking Lot	494.00	Space	4.45	197,600.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2025
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	263	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Construction Run only

Land Use - Phase 2 Construction
Behavioral Health Building - 102,000 sqft
Parking spaces - 494

Construction Phase - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Trips and VMT - CalEEMod Defaults Used

On-road Fugitive Dust - CalEEMod Defaults Used

Temecula Hospital SEIR Construction - Phase 2 - South Coast AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Demolition - No Demolition

Grading - Total Import/Export and Grading quantities were scaled according to the sqft of each phase.
Import Quantity - 20,570 CY
Export Quantity - 6,260 CY
Grading Quantity - 8,049 CY

Architectural Coating - SCAQMD's Rule 1113

Vehicle Trips - No Operations

Vehicle Emission Factors - No Operations

Vehicle Emission Factors - No Operations

Vehicle Emission Factors - No Operations

Road Dust - No Operations

Consumer Products - No Operations

Area Coating - No Operations

Landscape Equipment - No Operations

Energy Use - No Operations

Water And Wastewater - No Operations

Solid Waste - No Operations

Area Mitigation -

Fleet Mix - No Operations

Woodstoves - No Operations

Operational Off-Road Equipment - No Operations

Stationary Sources - Emergency Generators and Fire Pumps - No Operations

Stationary Sources - Emergency Generators and Fire Pumps EF - No Operations

Stationary Sources - Process Boilers - No Operations

Stationary Sources - Process Boilers EF - No Operations

Stationary Sources - User Defined - No Operations

Land Use Change - No Operations

Sequestration - No Operations

Temecula Hospital SEIR Construction - Phase 2 - South Coast AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblArchitecturalCoating	EF_Parking	100.00	50.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	100	0
tblAreaCoating	Area_EF_Nonresidential_Interior	100	0
tblAreaCoating	Area_EF_Parking	100	0
tblAreaCoating	Area_EF_Residential_Exterior	50	0
tblAreaCoating	Area_EF_Residential_Interior	50	0
tblAreaCoating	Area_Nonresidential_Exterior	51000	0
tblAreaCoating	Area_Nonresidential_Interior	153000	0
tblAreaCoating	Area_Parking	11856	0
tblAreaCoating	ReapplicationRatePercent	10	0
tblConsumerProducts	ROG_EF	1.98E-05	0
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	0
tblConsumerProducts	ROG_EF_PesticidesFertilizers	5.152E-08	0
tblEnergyUse	LightingElect	4.52	0.00
tblEnergyUse	LightingElect	0.35	0.00
tblEnergyUse	NT24E	5.56	0.00
tblEnergyUse	NT24NG	6.03	0.00
tblEnergyUse	T24E	7.45	0.00
tblEnergyUse	T24NG	68.80	0.00
tblGrading	MaterialExported	0.00	6,260.00
tblGrading	MaterialImported	0.00	8,049.00
tblGrading	MaterialImported	0.00	20,570.00
tblLandscapeEquipment	NumberSummerDays	250	0
tblProjectCharacteristics	CH4IntensityFactor	0.033	0
tblProjectCharacteristics	CO2IntensityFactor	390.98	263
tblProjectCharacteristics	N2OIntensityFactor	0.004	0

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblSolidWaste	SolidWasteGenerationRate	1,101.60	0.00
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CC_TTP	16.10	0.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CNW_TTP	19.00	0.00
tblVehicleTrips	CW_TL	16.60	0.00
tblVehicleTrips	CW_TL	16.60	0.00
tblVehicleTrips	CW_TTP	64.90	0.00
tblVehicleTrips	DV_TP	25.00	0.00
tblVehicleTrips	PB_TP	2.00	0.00
tblVehicleTrips	PR_TP	73.00	0.00
tblVehicleTrips	ST_TR	7.72	0.00
tblVehicleTrips	SU_TR	6.77	0.00
tblVehicleTrips	WD_TR	10.72	0.00
tblWater	IndoorWaterUseRate	12,799,014.83	0.00
tblWater	OutdoorWaterUseRate	2,437,907.59	0.00

2.0 Emissions Summary

Temecula Hospital SEIR Construction - Phase 2 - South Coast AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.2641	2.4866	2.7036	7.0900e-003	0.3920	0.0985	0.4905	0.1449	0.0924	0.2373	0.0000	646.7130	646.7130	0.0903	0.0367	659.8982
2024	0.2688	0.1083	0.1759	2.9000e-004	4.1700e-003	5.3200e-003	9.4900e-003	1.1100e-003	4.9400e-003	6.0500e-003	0.0000	25.7471	25.7471	6.7000e-003	8.0000e-005	25.9378
Maximum	**0.2688**	**2.4866**	**2.7036**	**7.0900e-003**	**0.3920**	**0.0985**	**0.4905**	**0.1449**	**0.0924**	**0.2373**	**0.0000**	**646.7130**	**646.7130**	**0.0903**	**0.0367**	**659.8982**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.2641	2.4866	2.7036	7.0900e-003	0.3920	0.0985	0.4905	0.1449	0.0924	0.2373	0.0000	646.7126	646.7126	0.0903	0.0367	659.8978
2024	0.2688	0.1083	0.1759	2.9000e-004	4.1700e-003	5.3200e-003	9.4900e-003	1.1100e-003	4.9400e-003	6.0500e-003	0.0000	25.7471	25.7471	6.7000e-003	8.0000e-005	25.9378
Maximum	**0.2688**	**2.4866**	**2.7036**	**7.0900e-003**	**0.3920**	**0.0985**	**0.4905**	**0.1449**	**0.0924**	**0.2373**	**0.0000**	**646.7126**	**646.7126**	**0.0903**	**0.0367**	**659.8978**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**1-1-2023**	**3-31-2023**	0.9183	0.9183
2	**4-1-2023**	**6-30-2023**	0.5983	0.5983
3	**7-1-2023**	**9-30-2023**	0.6049	0.6049
4	**10-1-2023**	**12-31-2023**	0.6044	0.6044
5	**1-1-2024**	**3-31-2024**	0.3691	0.3691
		Highest	0.9183	0.9183

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2023	1/13/2023	5	10	
2	Grading	Grading	1/14/2023	2/10/2023	5	20	
3	Building Construction	Building Construction	2/11/2023	12/29/2023	5	230	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4	Paving	Paving	12/30/2023	1/26/2024	5	20	
5	Architectural Coating	Architectural Coating	1/27/2024	2/23/2024	5	20	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 20

Acres of Paving: 4.45

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 153,000; Non-Residential Outdoor: 51,000; Striped Parking Area: 11,856 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	3,249.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	975.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	116.00	49.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	23.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0998	0.0000	0.0998	0.0507	0.0000	0.0507	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0133	0.1376	0.0912	1.9000e-004		6.3300e-003	6.3300e-003		5.8200e-003	5.8200e-003	0.0000	16.7254	16.7254	5.4100e-003	0.0000	16.8606
Total	**0.0133**	**0.1376**	**0.0912**	**1.9000e-004**	**0.0998**	**6.3300e-003**	**0.1061**	**0.0507**	**5.8200e-003**	**0.0566**	**0.0000**	**16.7254**	**16.7254**	**5.4100e-003**	**0.0000**	**16.8606**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.4000e-003	0.2062	0.0554	9.3000e-004	0.0280	1.4800e-003	0.0294	7.6800e-003	1.4200e-003	9.1000e-003	0.0000	92.6614	92.6614	5.1400e-003	0.0147	97.1770
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	2.2000e-004	2.9400e-003	1.0000e-005	9.9000e-004	1.0000e-005	9.9000e-004	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.7727	0.7727	2.0000e-005	2.0000e-005	0.7792
Total	**3.6800e-003**	**0.2065**	**0.0583**	**9.4000e-004**	**0.0290**	**1.4900e-003**	**0.0304**	**7.9400e-003**	**1.4300e-003**	**9.3700e-003**	**0.0000**	**93.4341**	**93.4341**	**5.1600e-003**	**0.0147**	**97.9562**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0998	0.0000	0.0998	0.0507	0.0000	0.0507	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0133	0.1376	0.0912	1.9000e-004		6.3300e-003	6.3300e-003		5.8200e-003	5.8200e-003	0.0000	16.7253	16.7253	5.4100e-003	0.0000	16.8606
Total	**0.0133**	**0.1376**	**0.0912**	**1.9000e-004**	**0.0998**	**6.3300e-003**	**0.1061**	**0.0507**	**5.8200e-003**	**0.0566**	**0.0000**	**16.7253**	**16.7253**	**5.4100e-003**	**0.0000**	**16.8606**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.4000e-003	0.2062	0.0554	9.3000e-004	0.0280	1.4800e-003	0.0294	7.6800e-003	1.4200e-003	9.1000e-003	0.0000	92.6614	92.6614	5.1400e-003	0.0147	97.1770
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	2.2000e-004	2.9400e-003	1.0000e-005	9.9000e-004	1.0000e-005	9.9000e-004	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.7727	0.7727	2.0000e-005	2.0000e-005	0.7792
Total	**3.6800e-003**	**0.2065**	**0.0583**	**9.4000e-004**	**0.0290**	**1.4900e-003**	**0.0304**	**7.9400e-003**	**1.4300e-003**	**9.3700e-003**	**0.0000**	**93.4341**	**93.4341**	**5.1600e-003**	**0.0147**	**97.9562**

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0713	0.0000	0.0713	0.0343	0.0000	0.0343	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0171	0.1794	0.1475	3.0000e-004		7.7500e-003	7.7500e-003		7.1300e-003	7.1300e-003	0.0000	26.0606	26.0606	8.4300e-003	0.0000	26.2713
Total	**0.0171**	**0.1794**	**0.1475**	**3.0000e-004**	**0.0713**	**7.7500e-003**	**0.0790**	**0.0343**	**7.1300e-003**	**0.0415**	**0.0000**	**26.0606**	**26.0606**	**8.4300e-003**	**0.0000**	**26.2713**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0200e-003	0.0619	0.0166	2.8000e-004	8.3900e-003	4.5000e-004	8.8400e-003	2.3000e-003	4.3000e-004	2.7300e-003	0.0000	27.8070	27.8070	1.5400e-003	4.4200e-003	29.1621
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.7000e-004	3.6000e-004	4.8900e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.2879	1.2879	3.0000e-005	3.0000e-005	1.2986
Total	**1.4900e-003**	**0.0623**	**0.0215**	**2.9000e-004**	**0.0100**	**4.6000e-004**	**0.0105**	**2.7400e-003**	**4.4000e-004**	**3.1800e-003**	**0.0000**	**29.0949**	**29.0949**	**1.5700e-003**	**4.4500e-003**	**30.4607**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0713	0.0000	0.0713	0.0343	0.0000	0.0343	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0171	0.1794	0.1475	3.0000e-004		7.7500e-003	7.7500e-003		7.1300e-003	7.1300e-003	0.0000	26.0606	26.0606	8.4300e-003	0.0000	26.2713
Total	**0.0171**	**0.1794**	**0.1475**	**3.0000e-004**	**0.0713**	**7.7500e-003**	**0.0790**	**0.0343**	**7.1300e-003**	**0.0415**	**0.0000**	**26.0606**	**26.0606**	**8.4300e-003**	**0.0000**	**26.2713**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0200e-003	0.0619	0.0166	2.8000e-004	8.3900e-003	4.5000e-004	8.8400e-003	2.3000e-003	4.3000e-004	2.7300e-003	0.0000	27.8070	27.8070	1.5400e-003	4.4200e-003	29.1621
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.7000e-004	3.6000e-004	4.8900e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.2879	1.2879	3.0000e-005	3.0000e-005	1.2986
Total	**1.4900e-003**	**0.0623**	**0.0215**	**2.9000e-004**	**0.0100**	**4.6000e-004**	**0.0105**	**2.7400e-003**	**4.4000e-004**	**3.1800e-003**	**0.0000**	**29.0949**	**29.0949**	**1.5700e-003**	**4.4500e-003**	**30.4607**

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1809	1.6543	1.8681	3.1000e-003		0.0805	0.0805		0.0757	0.0757	0.0000	266.5755	266.5755	0.0634	0.0000	268.1608
Total	**0.1809**	**1.6543**	**1.8681**	**3.1000e-003**		**0.0805**	**0.0805**		**0.0757**	**0.0757**	**0.0000**	**266.5755**	**266.5755**	**0.0634**	**0.0000**	**268.1608**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.0900e-003	0.2147	0.0817	1.0300e-003	0.0355	1.1900e-003	0.0367	0.0103	1.1400e-003	0.0114	0.0000	100.2870	100.2870	3.3600e-003	0.0145	104.7012
Worker	0.0416	0.0320	0.4353	1.2500e-003	0.1464	8.4000e-004	0.1472	0.0389	7.7000e-004	0.0396	0.0000	114.5356	114.5356	2.9400e-003	2.9500e-003	115.4874
Total	**0.0477**	**0.2466**	**0.5170**	**2.2800e-003**	**0.1819**	**2.0300e-003**	**0.1839**	**0.0491**	**1.9100e-003**	**0.0510**	**0.0000**	**214.8226**	**214.8226**	**6.3000e-003**	**0.0175**	**220.1886**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1809	1.6543	1.8681	3.1000e-003		0.0805	0.0805		0.0757	0.0757	0.0000	266.5751	266.5751	0.0634	0.0000	268.1605
Total	**0.1809**	**1.6543**	**1.8681**	**3.1000e-003**		**0.0805**	**0.0805**		**0.0757**	**0.0757**	**0.0000**	**266.5751**	**266.5751**	**0.0634**	**0.0000**	**268.1605**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.0900e-003	0.2147	0.0817	1.0300e-003	0.0355	1.1900e-003	0.0367	0.0103	1.1400e-003	0.0114	0.0000	100.2870	100.2870	3.3600e-003	0.0145	104.7012
Worker	0.0416	0.0320	0.4353	1.2500e-003	0.1464	8.4000e-004	0.1472	0.0389	7.7000e-004	0.0396	0.0000	114.5356	114.5356	2.9400e-003	2.9500e-003	115.4874
Total	**0.0477**	**0.2466**	**0.5170**	**2.2800e-003**	**0.1819**	**2.0300e-003**	**0.1839**	**0.0491**	**1.9100e-003**	**0.0510**	**0.0000**	**214.8226**	**214.8226**	**6.3000e-003**	**0.0175**	**220.1886**

3.5 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.8800e-003	0.0953	0.1463	2.3000e-004		4.6900e-003	4.6900e-003		4.3100e-003	4.3100e-003	0.0000	20.0265	20.0265	6.4800e-003	0.0000	20.1885
Paving	5.8300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0157**	**0.0953**	**0.1463**	**2.3000e-004**		**4.6900e-003**	**4.6900e-003**		**4.3100e-003**	**4.3100e-003**	**0.0000**	**20.0265**	**20.0265**	**6.4800e-003**	**0.0000**	**20.1885**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	3.2000e-004	4.5600e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6500e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.2503	1.2503	3.0000e-005	3.0000e-005	1.2602
Total	**4.4000e-004**	**3.2000e-004**	**4.5600e-003**	**1.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6500e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.2503**	**1.2503**	**3.0000e-005**	**3.0000e-005**	**1.2602**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.8800e-003	0.0953	0.1463	2.3000e-004		4.6900e-003	4.6900e-003		4.3100e-003	4.3100e-003	0.0000	20.0265	20.0265	6.4800e-003	0.0000	20.1884
Paving	5.8300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0157**	**0.0953**	**0.1463**	**2.3000e-004**		**4.6900e-003**	**4.6900e-003**		**4.3100e-003**	**4.3100e-003**	**0.0000**	**20.0265**	**20.0265**	**6.4800e-003**	**0.0000**	**20.1884**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	3.2000e-004	4.5600e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6500e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.2503	1.2503	3.0000e-005	3.0000e-005	1.2602
Total	**4.4000e-004**	**3.2000e-004**	**4.5600e-003**	**1.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6500e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.2503**	**1.2503**	**3.0000e-005**	**3.0000e-005**	**1.2602**

3.6 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2501					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8100e-003	0.0122	0.0181	3.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	2.5533	2.5533	1.4000e-004	0.0000	2.5569
Total	**0.2519**	**0.0122**	**0.0181**	**3.0000e-005**		**6.1000e-004**	**6.1000e-004**		**6.1000e-004**	**6.1000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.4000e-004**	**0.0000**	**2.5569**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.7000e-004	4.9000e-004	6.9900e-003	2.0000e-005	2.5200e-003	1.0000e-005	2.5400e-003	6.7000e-004	1.0000e-005	6.8000e-004	0.0000	1.9171	1.9171	5.0000e-005	5.0000e-005	1.9323
Total	**6.7000e-004**	**4.9000e-004**	**6.9900e-003**	**2.0000e-005**	**2.5200e-003**	**1.0000e-005**	**2.5400e-003**	**6.7000e-004**	**1.0000e-005**	**6.8000e-004**	**0.0000**	**1.9171**	**1.9171**	**5.0000e-005**	**5.0000e-005**	**1.9323**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2501					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8100e-003	0.0122	0.0181	3.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	2.5533	2.5533	1.4000e-004	0.0000	2.5568
Total	**0.2519**	**0.0122**	**0.0181**	**3.0000e-005**		**6.1000e-004**	**6.1000e-004**		**6.1000e-004**	**6.1000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.4000e-004**	**0.0000**	**2.5568**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.7000e-004	4.9000e-004	6.9900e-003	2.0000e-005	2.5200e-003	1.0000e-005	2.5400e-003	6.7000e-004	1.0000e-005	6.8000e-004	0.0000	1.9171	1.9171	5.0000e-005	5.0000e-005	1.9323
Total	**6.7000e-004**	**4.9000e-004**	**6.9900e-003**	**2.0000e-005**	**2.5200e-003**	**1.0000e-005**	**2.5400e-003**	**6.7000e-004**	**1.0000e-005**	**6.8000e-004**	**0.0000**	**1.9171**	**1.9171**	**5.0000e-005**	**5.0000e-005**	**1.9323**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Hospital	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Hospital	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Hospital	0.541709	0.062136	0.185590	0.128486	0.023783	0.006533	0.012157	0.009216	0.000814	0.000497	0.024669	0.000753	0.003657
Parking Lot	0.541709	0.062136	0.185590	0.128486	0.023783	0.006533	0.012157	0.009216	0.000814	0.000497	0.024669	0.000753	0.003657

5.0 Energy Detail

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Hospital	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Hospital	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Hospital	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Hospital	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Hospital	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Hospital	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Hospital	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Hospital	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Temecula Hospital SEIR Construction - Phase 2 [Mitigated Run] - South Coast AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Temecula Hospital SEIR Construction - Phase 2 [Mitigated Run]

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Hospital	102.00	1000sqft	2.34	102,000.00	0
Parking Lot	494.00	Space	4.45	197,600.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2025
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	263	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Construction Run only

Land Use - Phase 2 Construction
Behavioral Health Building - 102,000 sqft
Parking spaces - 494

Construction Phase - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Trips and VMT - CalEEMod Defaults Used

On-road Fugitive Dust - CalEEMod Defaults Used

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Demolition - No Demolition

Grading - Total Import/Export and Grading quantities were scaled according to the sqft of each phase.
Import Quantity - 20,570 CY
Export Quantity - 6,260 CY
Grading Quantity - 8,049 CY

Architectural Coating - Archetectural coating mititgation measure applied

Vehicle Trips - No Operations

Vehicle Emission Factors - No Operations

Vehicle Emission Factors - No Operations

Vehicle Emission Factors - No Operations

Road Dust - No Operations

Woodstoves - No Operations

Consumer Products - No Operations

Area Coating - No Operations

Landscape Equipment - No Operations

Energy Use - No Operations

Water And Wastewater - No Operations

Solid Waste - No Operations

Land Use Change - No Operations

Sequestration - No Operations

Construction Off-road Equipment Mitigation - Tier 4 mitigation measures applied

Area Mitigation -

Operational Off-Road Equipment - No Operations

Fleet Mix - No Operations

Stationary Sources - Emergency Generators and Fire Pumps - No Operations

Stationary Sources - Process Boilers - No Operations

Stationary Sources - User Defined - No Operations

Stationary Sources - Emergency Generators and Fire Pumps EF - No Operations

Stationary Sources - Process Boilers EF - No Operations

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	10.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	10.00
tblArchitecturalCoating	EF_Parking	100.00	10.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	100	0
tblAreaCoating	Area_EF_Nonresidential_Interior	100	0
tblAreaCoating	Area_EF_Parking	100	0
tblAreaCoating	Area_EF_Residential_Exterior	50	0
tblAreaCoating	Area_EF_Residential_Interior	50	0
tblAreaCoating	Area_Nonresidential_Exterior	51000	0
tblAreaCoating	Area_Nonresidential_Interior	153000	0
tblAreaCoating	Area_Parking	11856	0
tblAreaCoating	ReapplicationRatePercent	10	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConsumerProducts	ROG_EF	1.98E-05	0
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	0
tblConsumerProducts	ROG_EF_PesticidesFertilizers	5.152E-08	0
tblEnergyUse	LightingElect	4.52	0.00
tblEnergyUse	LightingElect	0.35	0.00
tblEnergyUse	NT24E	5.56	0.00
tblEnergyUse	NT24NG	6.03	0.00
tblEnergyUse	T24E	7.45	0.00
tblEnergyUse	T24NG	68.80	0.00
tblGrading	MaterialExported	0.00	6,260.00
tblGrading	MaterialImported	0.00	8,049.00
tblGrading	MaterialImported	0.00	20,570.00
tblLandscapeEquipment	NumberSummerDays	250	0
tblProjectCharacteristics	CH4IntensityFactor	0.033	0
tblProjectCharacteristics	CO2IntensityFactor	390.98	263
tblProjectCharacteristics	N2OIntensityFactor	0.004	0
tblSolidWaste	SolidWasteGenerationRate	1,101.60	0.00
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CC_TTP	16.10	0.00
tblVehicleTrips	CNW_TL	6.90	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CNW_TTP	19.00	0.00
tblVehicleTrips	CW_TL	16.60	0.00
tblVehicleTrips	CW_TL	16.60	0.00
tblVehicleTrips	CW_TTP	64.90	0.00
tblVehicleTrips	DV_TP	25.00	0.00
tblVehicleTrips	PB_TP	2.00	0.00
tblVehicleTrips	PR_TP	73.00	0.00
tblVehicleTrips	ST_TR	7.72	0.00
tblVehicleTrips	SU_TR	6.77	0.00
tblVehicleTrips	WD_TR	10.72	0.00
tblWater	IndoorWaterUseRate	12,799,014.83	0.00
tblWater	OutdoorWaterUseRate	2,437,907.59	0.00

2.0 Emissions Summary

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.2643	2.4952	2.7059	7.1300e-003	0.3931	0.0986	0.4917	0.1452	0.0925	0.2377	0.0000	650.5917	650.5917	0.0905	0.0373	663.9659
2024	0.0687	0.1083	0.1759	2.9000e-004	4.1700e-003	5.3200e-003	9.4900e-003	1.1100e-003	4.9400e-003	6.0500e-003	0.0000	25.7471	25.7471	6.7000e-003	8.0000e-005	25.9378
Maximum	**0.2643**	**2.4952**	**2.7059**	**7.1300e-003**	**0.3931**	**0.0986**	**0.4917**	**0.1452**	**0.0925**	**0.2377**	**0.0000**	**650.5917**	**650.5917**	**0.0905**	**0.0373**	**663.9659**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.0966	0.8068	2.8889	7.1300e-003	0.2888	9.5200e-003	0.2983	0.0933	9.3200e-003	0.1026	0.0000	650.5913	650.5913	0.0905	0.0373	663.9655
2024	0.0601	0.0143	0.2028	2.9000e-004	4.1700e-003	4.4000e-004	4.6100e-003	1.1100e-003	4.3000e-004	1.5400e-003	0.0000	25.7471	25.7471	6.7000e-003	8.0000e-005	25.9378
Maximum	**0.0966**	**0.8068**	**2.8889**	**7.1300e-003**	**0.2888**	**9.5200e-003**	**0.2983**	**0.0933**	**9.3200e-003**	**0.1026**	**0.0000**	**650.5913**	**650.5913**	**0.0905**	**0.0373**	**663.9655**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**52.93**	**68.46**	**-7.28**	**0.00**	**26.27**	**90.41**	**39.57**	**35.46**	**89.99**	**57.27**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**1-1-2023**	**3-31-2023**	0.9265	0.3864
2	**4-1-2023**	**6-30-2023**	0.5983	0.1630
3	**7-1-2023**	**9-30-2023**	0.6049	0.1648
4	**10-1-2023**	**12-31-2023**	0.6044	0.1669
5	**1-1-2024**	**3-31-2024**	0.1690	0.0728
		Highest	0.9265	0.3864

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2023	1/13/2023	5	10	
2	Grading	Grading	1/14/2023	2/10/2023	5	20	
3	Building Construction	Building Construction	2/11/2023	12/29/2023	5	230	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4	Paving	Paving	12/30/2023	1/26/2024	5	20	
5	Architectural Coating	Architectural Coating	1/27/2024	2/23/2024	5	20	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 20

Acres of Paving: 4.45

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 153,000; Non-Residential Outdoor: 51,000; Striped Parking Area: 11,856 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	3,354.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	1,006.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	116.00	49.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	23.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0998	0.0000	0.0998	0.0507	0.0000	0.0507	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0133	0.1376	0.0912	1.9000e-004		6.3300e-003	6.3300e-003		5.8200e-003	5.8200e-003	0.0000	16.7254	16.7254	5.4100e-003	0.0000	16.8606
Total	**0.0133**	**0.1376**	**0.0912**	**1.9000e-004**	**0.0998**	**6.3300e-003**	**0.1061**	**0.0507**	**5.8200e-003**	**0.0566**	**0.0000**	**16.7254**	**16.7254**	**5.4100e-003**	**0.0000**	**16.8606**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.5100e-003	0.2129	0.0572	9.6000e-004	0.0289	1.5300e-003	0.0304	7.9200e-003	1.4700e-003	9.3900e-003	0.0000	95.6560	95.6560	5.3100e-003	0.0152	100.3176
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	2.2000e-004	2.9400e-003	1.0000e-005	9.9000e-004	1.0000e-005	9.9000e-004	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.7727	0.7727	2.0000e-005	2.0000e-005	0.7792
Total	**3.7900e-003**	**0.2131**	**0.0601**	**9.7000e-004**	**0.0299**	**1.5400e-003**	**0.0314**	**8.1800e-003**	**1.4800e-003**	**9.6600e-003**	**0.0000**	**96.4287**	**96.4287**	**5.3300e-003**	**0.0152**	**101.0967**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0389	0.0000	0.0389	0.0198	0.0000	0.0198	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.3300e-003	0.0101	0.1043	1.9000e-004		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	16.7253	16.7253	5.4100e-003	0.0000	16.8606
Total	**2.3300e-003**	**0.0101**	**0.1043**	**1.9000e-004**	**0.0389**	**3.1000e-004**	**0.0392**	**0.0198**	**3.1000e-004**	**0.0201**	**0.0000**	**16.7253**	**16.7253**	**5.4100e-003**	**0.0000**	**16.8606**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.5100e-003	0.2129	0.0572	9.6000e-004	0.0289	1.5300e-003	0.0304	7.9200e-003	1.4700e-003	9.3900e-003	0.0000	95.6560	95.6560	5.3100e-003	0.0152	100.3176
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	2.2000e-004	2.9400e-003	1.0000e-005	9.9000e-004	1.0000e-005	9.9000e-004	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.7727	0.7727	2.0000e-005	2.0000e-005	0.7792
Total	**3.7900e-003**	**0.2131**	**0.0601**	**9.7000e-004**	**0.0299**	**1.5400e-003**	**0.0314**	**8.1800e-003**	**1.4800e-003**	**9.6600e-003**	**0.0000**	**96.4287**	**96.4287**	**5.3300e-003**	**0.0152**	**101.0967**

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0713	0.0000	0.0713	0.0343	0.0000	0.0343	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0171	0.1794	0.1475	3.0000e-004		7.7500e-003	7.7500e-003		7.1300e-003	7.1300e-003	0.0000	26.0606	26.0606	8.4300e-003	0.0000	26.2713
Total	**0.0171**	**0.1794**	**0.1475**	**3.0000e-004**	**0.0713**	**7.7500e-003**	**0.0790**	**0.0343**	**7.1300e-003**	**0.0415**	**0.0000**	**26.0606**	**26.0606**	**8.4300e-003**	**0.0000**	**26.2713**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0500e-003	0.0639	0.0171	2.9000e-004	8.6600e-003	4.6000e-004	9.1200e-003	2.3800e-003	4.4000e-004	2.8200e-003	0.0000	28.6911	28.6911	1.5900e-003	4.5600e-003	30.0893
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.7000e-004	3.6000e-004	4.8900e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.2879	1.2879	3.0000e-005	3.0000e-005	1.2986
Total	**1.5200e-003**	**0.0642**	**0.0220**	**3.0000e-004**	**0.0103**	**4.7000e-004**	**0.0108**	**2.8200e-003**	**4.5000e-004**	**3.2700e-003**	**0.0000**	**29.9790**	**29.9790**	**1.6200e-003**	**4.5900e-003**	**31.3879**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0278	0.0000	0.0278	0.0134	0.0000	0.0134	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.6300e-003	0.0157	0.1775	3.0000e-004		4.8000e-004	4.8000e-004		4.8000e-004	4.8000e-004	0.0000	26.0606	26.0606	8.4300e-003	0.0000	26.2713
Total	**3.6300e-003**	**0.0157**	**0.1775**	**3.0000e-004**	**0.0278**	**4.8000e-004**	**0.0283**	**0.0134**	**4.8000e-004**	**0.0139**	**0.0000**	**26.0606**	**26.0606**	**8.4300e-003**	**0.0000**	**26.2713**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0500e-003	0.0639	0.0171	2.9000e-004	8.6600e-003	4.6000e-004	9.1200e-003	2.3800e-003	4.4000e-004	2.8200e-003	0.0000	28.6911	28.6911	1.5900e-003	4.5600e-003	30.0893
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.7000e-004	3.6000e-004	4.8900e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.2879	1.2879	3.0000e-005	3.0000e-005	1.2986
Total	**1.5200e-003**	**0.0642**	**0.0220**	**3.0000e-004**	**0.0103**	**4.7000e-004**	**0.0108**	**2.8200e-003**	**4.5000e-004**	**3.2700e-003**	**0.0000**	**29.9790**	**29.9790**	**1.6200e-003**	**4.5900e-003**	**31.3879**

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1809	1.6543	1.8681	3.1000e-003		0.0805	0.0805		0.0757	0.0757	0.0000	266.5755	266.5755	0.0634	0.0000	268.1608
Total	**0.1809**	**1.6543**	**1.8681**	**3.1000e-003**		**0.0805**	**0.0805**		**0.0757**	**0.0757**	**0.0000**	**266.5755**	**266.5755**	**0.0634**	**0.0000**	**268.1608**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.0900e-003	0.2147	0.0817	1.0300e-003	0.0355	1.1900e-003	0.0367	0.0103	1.1400e-003	0.0114	0.0000	100.2870	100.2870	3.3600e-003	0.0145	104.7012
Worker	0.0416	0.0320	0.4353	1.2500e-003	0.1464	8.4000e-004	0.1472	0.0389	7.7000e-004	0.0396	0.0000	114.5356	114.5356	2.9400e-003	2.9500e-003	115.4874
Total	**0.0477**	**0.2466**	**0.5170**	**2.2800e-003**	**0.1819**	**2.0300e-003**	**0.1839**	**0.0491**	**1.9100e-003**	**0.0510**	**0.0000**	**214.8226**	**214.8226**	**6.3000e-003**	**0.0175**	**220.1886**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0377	0.2570	2.0079	3.1000e-003		4.6900e-003	4.6900e-003		4.6900e-003	4.6900e-003	0.0000	266.5751	266.5751	0.0634	0.0000	268.1605
Total	**0.0377**	**0.2570**	**2.0079**	**3.1000e-003**		**4.6900e-003**	**4.6900e-003**		**4.6900e-003**	**4.6900e-003**	**0.0000**	**266.5751**	**266.5751**	**0.0634**	**0.0000**	**268.1605**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.0900e-003	0.2147	0.0817	1.0300e-003	0.0355	1.1900e-003	0.0367	0.0103	1.1400e-003	0.0114	0.0000	100.2870	100.2870	3.3600e-003	0.0145	104.7012
Worker	0.0416	0.0320	0.4353	1.2500e-003	0.1464	8.4000e-004	0.1472	0.0389	7.7000e-004	0.0396	0.0000	114.5356	114.5356	2.9400e-003	2.9500e-003	115.4874
Total	**0.0477**	**0.2466**	**0.5170**	**2.2800e-003**	**0.1819**	**2.0300e-003**	**0.1839**	**0.0491**	**1.9100e-003**	**0.0510**	**0.0000**	**214.8226**	**214.8226**	**6.3000e-003**	**0.0175**	**220.1886**

3.5 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.8800e-003	0.0953	0.1463	2.3000e-004		4.6900e-003	4.6900e-003		4.3100e-003	4.3100e-003	0.0000	20.0265	20.0265	6.4800e-003	0.0000	20.1885
Paving	5.8300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0157**	**0.0953**	**0.1463**	**2.3000e-004**		**4.6900e-003**	**4.6900e-003**		**4.3100e-003**	**4.3100e-003**	**0.0000**	**20.0265**	**20.0265**	**6.4800e-003**	**0.0000**	**20.1885**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	3.2000e-004	4.5600e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6500e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.2503	1.2503	3.0000e-005	3.0000e-005	1.2602
Total	**4.4000e-004**	**3.2000e-004**	**4.5600e-003**	**1.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6500e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.2503**	**1.2503**	**3.0000e-005**	**3.0000e-005**	**1.2602**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.8000e-003	0.0122	0.1730	2.3000e-004		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004	0.0000	20.0265	20.0265	6.4800e-003	0.0000	20.1884
Paving	5.8300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.6300e-003**	**0.0122**	**0.1730**	**2.3000e-004**		**3.7000e-004**	**3.7000e-004**		**3.7000e-004**	**3.7000e-004**	**0.0000**	**20.0265**	**20.0265**	**6.4800e-003**	**0.0000**	**20.1884**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	3.2000e-004	4.5600e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6500e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.2503	1.2503	3.0000e-005	3.0000e-005	1.2602
Total	**4.4000e-004**	**3.2000e-004**	**4.5600e-003**	**1.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6500e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.2503**	**1.2503**	**3.0000e-005**	**3.0000e-005**	**1.2602**

3.6 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0500					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8100e-003	0.0122	0.0181	3.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	2.5533	2.5533	1.4000e-004	0.0000	2.5569
Total	**0.0518**	**0.0122**	**0.0181**	**3.0000e-005**		**6.1000e-004**	**6.1000e-004**		**6.1000e-004**	**6.1000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.4000e-004**	**0.0000**	**2.5569**

Temecula Hospital SEIR Construction - Phase 2 [Mitigated Run] - South Coast AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.7000e-004	4.9000e-004	6.9900e-003	2.0000e-005	2.5200e-003	1.0000e-005	2.5400e-003	6.7000e-004	1.0000e-005	6.8000e-004	0.0000	1.9171	1.9171	5.0000e-005	5.0000e-005	1.9323
Total	**6.7000e-004**	**4.9000e-004**	**6.9900e-003**	**2.0000e-005**	**2.5200e-003**	**1.0000e-005**	**2.5400e-003**	**6.7000e-004**	**1.0000e-005**	**6.8000e-004**	**0.0000**	**1.9171**	**1.9171**	**5.0000e-005**	**5.0000e-005**	**1.9323**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0500					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.0000e-004	1.2900e-003	0.0183	3.0000e-005		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	2.5533	2.5533	1.4000e-004	0.0000	2.5568
Total	**0.0503**	**1.2900e-003**	**0.0183**	**3.0000e-005**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**2.5533**	**2.5533**	**1.4000e-004**	**0.0000**	**2.5568**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.7000e-004	4.9000e-004	6.9900e-003	2.0000e-005	2.5200e-003	1.0000e-005	2.5400e-003	6.7000e-004	1.0000e-005	6.8000e-004	0.0000	1.9171	1.9171	5.0000e-005	5.0000e-005	1.9323
Total	**6.7000e-004**	**4.9000e-004**	**6.9900e-003**	**2.0000e-005**	**2.5200e-003**	**1.0000e-005**	**2.5400e-003**	**6.7000e-004**	**1.0000e-005**	**6.8000e-004**	**0.0000**	**1.9171**	**1.9171**	**5.0000e-005**	**5.0000e-005**	**1.9323**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Hospital	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Hospital	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Hospital	0.541709	0.062136	0.185590	0.128486	0.023783	0.006533	0.012157	0.009216	0.000814	0.000497	0.024669	0.000753	0.003657
Parking Lot	0.541709	0.062136	0.185590	0.128486	0.023783	0.006533	0.012157	0.009216	0.000814	0.000497	0.024669	0.000753	0.003657

5.0 Energy Detail

Temecula Hospital SEIR Construction - Phase 2 [Mitigated Run] - South Coast AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Temecula Hospital SEIR Construction - Phase 2 [Mitigated Run] - South Coast AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Hospital	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Hospital	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Hospital	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Hospital	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Hospital	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Hospital	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Hospital	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Hospital	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Temecula Hospital SEIR Construction - Phase 2 - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Temecula Hospital SEIR Construction - Phase 2

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Hospital	102.00	1000sqft	2.34	102,000.00	0
Parking Lot	494.00	Space	4.45	197,600.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2025
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	263	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Construction Run only

Land Use - Phase 2 Construction
Behavioral Health Building - 102,000 sqft
Parking spaces - 494

Construction Phase - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Trips and VMT - CalEEMod Defaults Used

On-road Fugitive Dust - CalEEMod Defaults Used

Temecula Hospital SEIR Construction - Phase 2 - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Demolition - No Demolition

Grading - Total Import/Export and Grading quantities were scaled according to the sqft of each phase.
Import Quantity - 20,570 CY
Export Quantity - 6,260 CY
Grading Quantity - 8,049 CY

Architectural Coating - SCAQMD's Rule 1113

Vehicle Trips - No Operations

Vehicle Emission Factors - No Operations

Vehicle Emission Factors - No Operations

Vehicle Emission Factors - No Operations

Road Dust - No Operations

Consumer Products - No Operations

Area Coating - No Operations

Landscape Equipment - No Operations

Energy Use - No Operations

Water And Wastewater - No Operations

Solid Waste - No Operations

Area Mitigation -

Fleet Mix - No Operations

Woodstoves - No Operations

Operational Off-Road Equipment - No Operations

Stationary Sources - Emergency Generators and Fire Pumps - No Operations

Stationary Sources - Emergency Generators and Fire Pumps EF - No Operations

Stationary Sources - Process Boilers - No Operations

Stationary Sources - Process Boilers EF - No Operations

Stationary Sources - User Defined - No Operations

Land Use Change - No Operations

Sequestration - No Operations

Temecula Hospital SEIR Construction - Phase 2 - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblArchitecturalCoating	EF_Parking	100.00	50.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	100	0
tblAreaCoating	Area_EF_Nonresidential_Interior	100	0
tblAreaCoating	Area_EF_Parking	100	0
tblAreaCoating	Area_EF_Residential_Exterior	50	0
tblAreaCoating	Area_EF_Residential_Interior	50	0
tblAreaCoating	Area_Nonresidential_Exterior	51000	0
tblAreaCoating	Area_Nonresidential_Interior	153000	0
tblAreaCoating	Area_Parking	11856	0
tblAreaCoating	ReapplicationRatePercent	10	0
tblConsumerProducts	ROG_EF	1.98E-05	0
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	0
tblConsumerProducts	ROG_EF_PesticidesFertilizers	5.152E-08	0
tblEnergyUse	LightingElect	4.52	0.00
tblEnergyUse	LightingElect	0.35	0.00
tblEnergyUse	NT24E	5.56	0.00
tblEnergyUse	NT24NG	6.03	0.00
tblEnergyUse	T24E	7.45	0.00
tblEnergyUse	T24NG	68.80	0.00
tblGrading	MaterialExported	0.00	6,260.00
tblGrading	MaterialImported	0.00	8,049.00
tblGrading	MaterialImported	0.00	20,570.00
tblLandscapeEquipment	NumberSummerDays	250	0
tblProjectCharacteristics	CH4IntensityFactor	0.033	0
tblProjectCharacteristics	CO2IntensityFactor	390.98	263
tblProjectCharacteristics	N2OIntensityFactor	0.004	0

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblSolidWaste	SolidWasteGenerationRate	1,101.60	0.00
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CC_TTP	16.10	0.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CNW_TTP	19.00	0.00
tblVehicleTrips	CW_TL	16.60	0.00
tblVehicleTrips	CW_TL	16.60	0.00
tblVehicleTrips	CW_TTP	64.90	0.00
tblVehicleTrips	DV_TP	25.00	0.00
tblVehicleTrips	PB_TP	2.00	0.00
tblVehicleTrips	PR_TP	73.00	0.00
tblVehicleTrips	ST_TR	7.72	0.00
tblVehicleTrips	SU_TR	6.77	0.00
tblVehicleTrips	WD_TR	10.72	0.00
tblWater	IndoorWaterUseRate	12,799,014.83	0.00
tblWater	OutdoorWaterUseRate	2,437,907.59	0.00

2.0 Emissions Summary

Temecula Hospital SEIR Construction - Phase 2 - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	3.4170	66.6993	29.8822	0.2255	25.8447	1.5637	27.4083	11.7595	1.4495	13.2090	0.0000	24,284.1155	24,284.1155	2.3320	3.2480	25,310.3202
2024	25.2616	9.5533	15.1158	0.0242	0.2571	0.4694	0.6371	0.0682	0.4319	0.4763	0.0000	2,351.6467	2,351.6467	0.7172	4.8400e-003	2,370.5179
Maximum	**25.2616**	**66.6993**	**29.8822**	**0.2255**	**25.8447**	**1.5637**	**27.4083**	**11.7595**	**1.4495**	**13.2090**	**0.0000**	**24,284.1155**	**24,284.1155**	**2.3320**	**3.2480**	**25,310.3202**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	3.4170	66.6993	29.8822	0.2255	25.8447	1.5637	27.4083	11.7595	1.4495	13.2090	0.0000	24,284.1155	24,284.1155	2.3320	3.2480	25,310.3202
2024	25.2616	9.5533	15.1158	0.0242	0.2571	0.4694	0.6371	0.0682	0.4319	0.4763	0.0000	2,351.6467	2,351.6467	0.7172	4.8400e-003	2,370.5179
Maximum	**25.2616**	**66.6993**	**29.8822**	**0.2255**	**25.8447**	**1.5637**	**27.4083**	**11.7595**	**1.4495**	**13.2090**	**0.0000**	**24,284.1155**	**24,284.1155**	**2.3320**	**3.2480**	**25,310.3202**

Temecula Hospital SEIR Construction - Phase 2 - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.5900e-003	5.5000e-004	0.0607	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004		0.1304	0.1304	3.4000e-004		0.1389
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.5900e-003**	**5.5000e-004**	**0.0607**	**0.0000**	**0.0000**	**2.2000e-004**	**2.2000e-004**	**0.0000**	**2.2000e-004**	**2.2000e-004**		**0.1304**	**0.1304**	**3.4000e-004**	**0.0000**	**0.1389**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.5900e-003	5.5000e-004	0.0607	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004		0.1304	0.1304	3.4000e-004		0.1389
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.5900e-003**	**5.5000e-004**	**0.0607**	**0.0000**	**0.0000**	**2.2000e-004**	**2.2000e-004**	**0.0000**	**2.2000e-004**	**2.2000e-004**		**0.1304**	**0.1304**	**3.4000e-004**	**0.0000**	**0.1389**

Temecula Hospital SEIR Construction - Phase 2 - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2023	1/13/2023	5	10	
2	Grading	Grading	1/14/2023	2/10/2023	5	20	
3	Building Construction	Building Construction	2/11/2023	12/29/2023	5	230	
4	Paving	Paving	12/30/2023	1/26/2024	5	20	
5	Architectural Coating	Architectural Coating	1/27/2024	2/23/2024	5	20	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 20

Acres of Paving: 4.45

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 153,000; Non-Residential Outdoor: 51,000; Striped Parking Area: 11,856 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	3,249.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	975.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	116.00	49.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	23.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Temecula Hospital SEIR Construction - Phase 2 - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.9604	0.0000	19.9604	10.1484	0.0000	10.1484			0.0000			0.0000
Off-Road	2.6595	27.5242	18.2443	0.0381		1.2660	1.2660		1.1647	1.1647		3,687.3081	3,687.3081	1.1926		3,717.1219
Total	**2.6595**	**27.5242**	**18.2443**	**0.0381**	**19.9604**	**1.2660**	**21.2265**	**10.1484**	**1.1647**	**11.3131**		**3,687.3081**	**3,687.3081**	**1.1926**		**3,717.1219**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.7001	39.1365	11.0064	0.1856	5.6830	0.2965	5.9795	1.5578	0.2837	1.8414		20,418.6808	20,418.6808	1.1351	3.2439	21,413.7513
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0575	0.0386	0.6314	1.7600e-003	0.2012	1.1300e-003	0.2023	0.0534	1.0400e-003	0.0544		178.1267	178.1267	4.3200e-003	4.0700e-003	179.4470
Total	**0.7575**	**39.1751**	**11.6378**	**0.1874**	**5.8842**	**0.2977**	**6.1819**	**1.6111**	**0.2847**	**1.8958**		**20,596.8074**	**20,596.8074**	**1.1394**	**3.2480**	**21,593.1983**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.9604	0.0000	19.9604	10.1484	0.0000	10.1484			0.0000			0.0000
Off-Road	2.6595	27.5242	18.2443	0.0381		1.2660	1.2660		1.1647	1.1647	0.0000	3,687.3081	3,687.3081	1.1926		3,717.1219
Total	**2.6595**	**27.5242**	**18.2443**	**0.0381**	**19.9604**	**1.2660**	**21.2265**	**10.1484**	**1.1647**	**11.3131**	**0.0000**	**3,687.3081**	**3,687.3081**	**1.1926**		**3,717.1219**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.7001	39.1365	11.0064	0.1856	5.6830	0.2965	5.9795	1.5578	0.2837	1.8414		20,418.6808	20,418.6808	1.1351	3.2439	21,413.7513
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0575	0.0386	0.6314	1.7600e-003	0.2012	1.1300e-003	0.2023	0.0534	1.0400e-003	0.0544		178.1267	178.1267	4.3200e-003	4.0700e-003	179.4470
Total	**0.7575**	**39.1751**	**11.6378**	**0.1874**	**5.8842**	**0.2977**	**6.1819**	**1.6111**	**0.2847**	**1.8958**		**20,596.8074**	**20,596.8074**	**1.1394**	**3.2480**	**21,593.1983**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.1281	0.0000	7.1281	3.4316	0.0000	3.4316			0.0000			0.0000
Off-Road	1.7109	17.9359	14.7507	0.0297		0.7749	0.7749		0.7129	0.7129		2,872.6910	2,872.6910	0.9291		2,895.9182
Total	**1.7109**	**17.9359**	**14.7507**	**0.0297**	**7.1281**	**0.7749**	**7.9030**	**3.4316**	**0.7129**	**4.1446**		**2,872.6910**	**2,872.6910**	**0.9291**		**2,895.9182**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1050	5.8723	1.6515	0.0279	0.8527	0.0445	0.8972	0.2337	0.0426	0.2763		3,063.7448	3,063.7448	0.1703	0.4867	3,213.0513
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0479	0.0321	0.5262	1.4700e-003	0.1677	9.4000e-004	0.1686	0.0445	8.7000e-004	0.0453		148.4389	148.4389	3.6000e-003	3.3900e-003	149.5392
Total	**0.1529**	**5.9044**	**2.1777**	**0.0293**	**1.0204**	**0.0454**	**1.0658**	**0.2782**	**0.0434**	**0.3216**		**3,212.1837**	**3,212.1837**	**0.1739**	**0.4901**	**3,362.5905**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.1281	0.0000	7.1281	3.4316	0.0000	3.4316			0.0000			0.0000
Off-Road	1.7109	17.9359	14.7507	0.0297		0.7749	0.7749		0.7129	0.7129	0.0000	2,872.6910	2,872.6910	0.9291		2,895.9182
Total	**1.7109**	**17.9359**	**14.7507**	**0.0297**	**7.1281**	**0.7749**	**7.9030**	**3.4316**	**0.7129**	**4.1446**	**0.0000**	**2,872.6910**	**2,872.6910**	**0.9291**		**2,895.9182**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1050	5.8723	1.6515	0.0279	0.8527	0.0445	0.8972	0.2337	0.0426	0.2763		3,063.7448	3,063.7448	0.1703	0.4867	3,213.0513
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0479	0.0321	0.5262	1.4700e-003	0.1677	9.4000e-004	0.1686	0.0445	8.7000e-004	0.0453		148.4389	148.4389	3.6000e-003	3.3900e-003	149.5392
Total	**0.1529**	**5.9044**	**2.1777**	**0.0293**	**1.0204**	**0.0454**	**1.0658**	**0.2782**	**0.0434**	**0.3216**		**3,212.1837**	**3,212.1837**	**0.1739**	**0.4901**	**3,362.5905**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0542	1.7787	0.7003	8.9200e-003	0.3138	0.0104	0.3241	0.0903	9.9100e-003	0.1002		960.5515	960.5515	0.0323	0.1391	1,002.7980
Worker	0.3703	0.2485	4.0691	0.0114	1.2966	7.2800e-003	1.3039	0.3439	6.7000e-003	0.3506		1,147.9274	1,147.9274	0.0278	0.0262	1,156.4363
Total	**0.4245**	**2.0272**	**4.7694**	**0.0203**	**1.6104**	**0.0176**	**1.6280**	**0.4342**	**0.0166**	**0.4508**		**2,108.4789**	**2,108.4789**	**0.0601**	**0.1653**	**2,159.2342**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0542	1.7787	0.7003	8.9200e-003	0.3138	0.0104	0.3241	0.0903	9.9100e-003	0.1002		960.5515	960.5515	0.0323	0.1391	1,002.7980
Worker	0.3703	0.2485	4.0691	0.0114	1.2966	7.2800e-003	1.3039	0.3439	6.7000e-003	0.3506		1,147.9274	1,147.9274	0.0278	0.0262	1,156.4363
Total	**0.4245**	**2.0272**	**4.7694**	**0.0203**	**1.6104**	**0.0176**	**1.6280**	**0.4342**	**0.0166**	**0.4508**		**2,108.4789**	**2,108.4789**	**0.0601**	**0.1653**	**2,159.2342**

Temecula Hospital SEIR Construction - Phase 2 - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.5830					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.6157**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0479	0.0321	0.5262	1.4700e-003	0.1677	9.4000e-004	0.1686	0.0445	8.7000e-004	0.0453		148.4389	148.4389	3.6000e-003	3.3900e-003	149.5392
Total	**0.0479**	**0.0321**	**0.5262**	**1.4700e-003**	**0.1677**	**9.4000e-004**	**0.1686**	**0.0445**	**8.7000e-004**	**0.0453**		**148.4389**	**148.4389**	**3.6000e-003**	**3.3900e-003**	**149.5392**

Temecula Hospital SEIR Construction - Phase 2 - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.5830					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.6157**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0479	0.0321	0.5262	1.4700e-003	0.1677	9.4000e-004	0.1686	0.0445	8.7000e-004	0.0453		148.4389	148.4389	3.6000e-003	3.3900e-003	149.5392
Total	**0.0479**	**0.0321**	**0.5262**	**1.4700e-003**	**0.1677**	**9.4000e-004**	**0.1686**	**0.0445**	**8.7000e-004**	**0.0453**		**148.4389**	**148.4389**	**3.6000e-003**	**3.3900e-003**	**149.5392**

Temecula Hospital SEIR Construction - Phase 2 - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.5830					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.5711**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**		**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0447	0.0287	0.4900	1.4300e-003	0.1677	9.0000e-004	0.1686	0.0445	8.3000e-004	0.0453		144.0995	144.0995	3.2600e-003	3.1600e-003	145.1216
Total	**0.0447**	**0.0287**	**0.4900**	**1.4300e-003**	**0.1677**	**9.0000e-004**	**0.1686**	**0.0445**	**8.3000e-004**	**0.0453**		**144.0995**	**144.0995**	**3.2600e-003**	**3.1600e-003**	**145.1216**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310	0.0000	2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.5830					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.5711**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**	**0.0000**	**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0447	0.0287	0.4900	1.4300e-003	0.1677	9.0000e-004	0.1686	0.0445	8.3000e-004	0.0453		144.0995	144.0995	3.2600e-003	3.1600e-003	145.1216
Total	**0.0447**	**0.0287**	**0.4900**	**1.4300e-003**	**0.1677**	**9.0000e-004**	**0.1686**	**0.0445**	**8.3000e-004**	**0.0453**		**144.0995**	**144.0995**	**3.2600e-003**	**3.1600e-003**	**145.1216**

Temecula Hospital SEIR Construction - Phase 2 - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	25.0123					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**25.1931**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0685	0.0440	0.7514	2.1900e-003	0.2571	1.3800e-003	0.2585	0.0682	1.2700e-003	0.0695		220.9525	220.9525	5.0000e-003	4.8400e-003	222.5198
Total	**0.0685**	**0.0440**	**0.7514**	**2.1900e-003**	**0.2571**	**1.3800e-003**	**0.2585**	**0.0682**	**1.2700e-003**	**0.0695**		**220.9525**	**220.9525**	**5.0000e-003**	**4.8400e-003**	**222.5198**

Temecula Hospital SEIR Construction - Phase 2 - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	25.0123					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**25.1931**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0685	0.0440	0.7514	2.1900e-003	0.2571	1.3800e-003	0.2585	0.0682	1.2700e-003	0.0695		220.9525	220.9525	5.0000e-003	4.8400e-003	222.5198
Total	**0.0685**	**0.0440**	**0.7514**	**2.1900e-003**	**0.2571**	**1.3800e-003**	**0.2585**	**0.0682**	**1.2700e-003**	**0.0695**		**220.9525**	**220.9525**	**5.0000e-003**	**4.8400e-003**	**222.5198**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Hospital	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Hospital	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Hospital	0.541709	0.062136	0.185590	0.128486	0.023783	0.006533	0.012157	0.009216	0.000814	0.000497	0.024669	0.000753	0.003657
Parking Lot	0.541709	0.062136	0.185590	0.128486	0.023783	0.006533	0.012157	0.009216	0.000814	0.000497	0.024669	0.000753	0.003657

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Hospital	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Hospital	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.5900e-003	5.5000e-004	0.0607	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004		0.1304	0.1304	3.4000e-004		0.1389
Unmitigated	5.5900e-003	5.5000e-004	0.0607	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004		0.1304	0.1304	3.4000e-004		0.1389

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.5900e-003	5.5000e-004	0.0607	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004		0.1304	0.1304	3.4000e-004		0.1389
Total	**5.5900e-003**	**5.5000e-004**	**0.0607**	**0.0000**		**2.2000e-004**	**2.2000e-004**		**2.2000e-004**	**2.2000e-004**		**0.1304**	**0.1304**	**3.4000e-004**		**0.1389**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.5900e-003	5.5000e-004	0.0607	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004		0.1304	0.1304	3.4000e-004		0.1389
Total	**5.5900e-003**	**5.5000e-004**	**0.0607**	**0.0000**		**2.2000e-004**	**2.2000e-004**		**2.2000e-004**	**2.2000e-004**		**0.1304**	**0.1304**	**3.4000e-004**		**0.1389**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Temecula Hospital SEIR Construction - Phase 2 [Mitigated Run] - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Temecula Hospital SEIR Construction - Phase 2 [Mitigated Run]

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Hospital	102.00	1000sqft	2.34	102,000.00	0
Parking Lot	494.00	Space	4.45	197,600.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2025
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	263	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Construction Run only

Land Use - Phase 2 Construction
Behavioral Health Building - 102,000 sqft
Parking spaces - 494

Construction Phase - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Trips and VMT - CalEEMod Defaults Used

On-road Fugitive Dust - CalEEMod Defaults Used

Temecula Hospital SEIR Construction - Phase 2 [Mitigated Run] - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Demolition - No Demolition

Grading - Total Import/Export and Grading quantities were scaled according to the sqft of each phase.
Import Quantity - 20,570 CY
Export Quantity - 6,260 CY
Grading Quantity - 8,049 CY

Architectural Coating - Archetectural coating mititgation measure applied

Vehicle Trips - No Operations

Vehicle Emission Factors - No Operations

Vehicle Emission Factors - No Operations

Vehicle Emission Factors - No Operations

Road Dust - No Operations

Woodstoves - No Operations

Consumer Products - No Operations

Area Coating - No Operations

Landscape Equipment - No Operations

Energy Use - No Operations

Water And Wastewater - No Operations

Solid Waste - No Operations

Land Use Change - No Operations

Sequestration - No Operations

Construction Off-road Equipment Mitigation - Tier 4 mitigation measures applied

Area Mitigation -

Operational Off-Road Equipment - No Operations

Fleet Mix - No Operations

Stationary Sources - Emergency Generators and Fire Pumps - No Operations

Stationary Sources - Process Boilers - No Operations

Stationary Sources - User Defined - No Operations

Stationary Sources - Emergency Generators and Fire Pumps EF - No Operations

Stationary Sources - Process Boilers EF - No Operations

Temecula Hospital SEIR Construction - Phase 2 [Mitigated Run] - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	10.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	10.00
tblArchitecturalCoating	EF_Parking	100.00	10.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	100	0
tblAreaCoating	Area_EF_Nonresidential_Interior	100	0
tblAreaCoating	Area_EF_Parking	100	0
tblAreaCoating	Area_EF_Residential_Exterior	50	0
tblAreaCoating	Area_EF_Residential_Interior	50	0
tblAreaCoating	Area_Nonresidential_Exterior	51000	0
tblAreaCoating	Area_Nonresidential_Interior	153000	0
tblAreaCoating	Area_Parking	11856	0
tblAreaCoating	ReapplicationRatePercent	10	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConsumerProducts	ROG_EF	1.98E-05	0
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	0
tblConsumerProducts	ROG_EF_PesticidesFertilizers	5.152E-08	0
tblEnergyUse	LightingElect	4.52	0.00
tblEnergyUse	LightingElect	0.35	0.00
tblEnergyUse	NT24E	5.56	0.00
tblEnergyUse	NT24NG	6.03	0.00
tblEnergyUse	T24E	7.45	0.00
tblEnergyUse	T24NG	68.80	0.00
tblGrading	MaterialExported	0.00	6,260.00
tblGrading	MaterialImported	0.00	8,049.00
tblGrading	MaterialImported	0.00	20,570.00
tblLandscapeEquipment	NumberSummerDays	250	0
tblProjectCharacteristics	CH4IntensityFactor	0.033	0
tblProjectCharacteristics	CO2IntensityFactor	390.98	263
tblProjectCharacteristics	N2OIntensityFactor	0.004	0
tblSolidWaste	SolidWasteGenerationRate	1,101.60	0.00
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CC_TTP	16.10	0.00
tblVehicleTrips	CNW_TL	6.90	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CNW_TTP	19.00	0.00
tblVehicleTrips	CW_TL	16.60	0.00
tblVehicleTrips	CW_TL	16.60	0.00
tblVehicleTrips	CW_TTP	64.90	0.00
tblVehicleTrips	DV_TP	25.00	0.00
tblVehicleTrips	PB_TP	2.00	0.00
tblVehicleTrips	PR_TP	73.00	0.00
tblVehicleTrips	ST_TR	7.72	0.00
tblVehicleTrips	SU_TR	6.77	0.00
tblVehicleTrips	WD_TR	10.72	0.00
tblWater	IndoorWaterUseRate	12,799,014.83	0.00
tblWater	OutdoorWaterUseRate	2,437,907.59	0.00

2.0 Emissions Summary

Temecula Hospital SEIR Construction - Phase 2 [Mitigated Run] - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	3.4396	67.9641	30.2379	0.2315	26.0283	1.5733	27.6016	11.8099	1.4586	13.2685	0.0000	24,943.9990	24,943.9990	2.3687	3.3528	26,002.3620
2024	5.2518	9.5533	15.1158	0.0242	0.2571	0.4694	0.6371	0.0682	0.4319	0.4763	0.0000	2,351.6467	2,351.6467	0.7172	4.8400e-003	2,370.5179
Maximum	**5.2518**	**67.9641**	**30.2379**	**0.2315**	**26.0283**	**1.5733**	**27.6016**	**11.8099**	**1.4586**	**13.2685**	**0.0000**	**24,943.9990**	**24,943.9990**	**2.3687**	**3.3528**	**26,002.3620**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	1.2457	42.4574	32.8625	0.2315	13.8525	0.3693	14.2218	5.6193	0.3560	5.9753	0.0000	24,943.9990	24,943.9990	2.3687	3.3528	26,002.3620
2024	5.1007	1.2441	17.7857	0.0242	0.2571	0.0383	0.2624	0.0682	0.0382	0.0827	0.0000	2,351.6467	2,351.6467	0.7172	4.8400e-003	2,370.5179
Maximum	**5.1007**	**42.4574**	**32.8625**	**0.2315**	**13.8525**	**0.3693**	**14.2218**	**5.6193**	**0.3560**	**5.9753**	**0.0000**	**24,943.9990**	**24,943.9990**	**2.3687**	**3.3528**	**26,002.3620**

Temecula Hospital SEIR Construction - Phase 2 [Mitigated Run] - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	26.98	43.62	-11.67	0.00	46.32	80.05	48.71	52.12	79.15	55.93	0.00	0.00	0.00	0.00	0.00	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.5900e-003	5.5000e-004	0.0607	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004		0.1304	0.1304	3.4000e-004		0.1389
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.5900e-003**	**5.5000e-004**	**0.0607**	**0.0000**	**0.0000**	**2.2000e-004**	**2.2000e-004**	**0.0000**	**2.2000e-004**	**2.2000e-004**		**0.1304**	**0.1304**	**3.4000e-004**	**0.0000**	**0.1389**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.5900e-003	5.5000e-004	0.0607	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004		0.1304	0.1304	3.4000e-004		0.1389
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.5900e-003**	**5.5000e-004**	**0.0607**	**0.0000**	**0.0000**	**2.2000e-004**	**2.2000e-004**	**0.0000**	**2.2000e-004**	**2.2000e-004**		**0.1304**	**0.1304**	**3.4000e-004**	**0.0000**	**0.1389**

Temecula Hospital SEIR Construction - Phase 2 [Mitigated Run] - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2023	1/13/2023	5	10	
2	Grading	Grading	1/14/2023	2/10/2023	5	20	
3	Building Construction	Building Construction	2/11/2023	12/29/2023	5	230	
4	Paving	Paving	12/30/2023	1/26/2024	5	20	
5	Architectural Coating	Architectural Coating	1/27/2024	2/23/2024	5	20	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 20

Acres of Paving: 4.45

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 153,000; Non-Residential Outdoor: 51,000; Striped Parking Area: 11,856 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	3,354.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	1,006.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	116.00	49.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	23.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.9604	0.0000	19.9604	10.1484	0.0000	10.1484			0.0000			0.0000
Off-Road	2.6595	27.5242	18.2443	0.0381		1.2660	1.2660		1.1647	1.1647		3,687.3081	3,687.3081	1.1926		3,717.1219
Total	**2.6595**	**27.5242**	**18.2443**	**0.0381**	**19.9604**	**1.2660**	**21.2265**	**10.1484**	**1.1647**	**11.3131**		**3,687.3081**	**3,687.3081**	**1.1926**		**3,717.1219**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.7227	40.4013	11.3621	0.1916	5.8667	0.3061	6.1728	1.6081	0.2929	1.9010		21,078.5643	21,078.5643	1.1718	3.3488	22,105.7932
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0575	0.0386	0.6314	1.7600e-003	0.2012	1.1300e-003	0.2023	0.0534	1.0400e-003	0.0544		178.1267	178.1267	4.3200e-003	4.0700e-003	179.4470
Total	**0.7801**	**40.4399**	**11.9935**	**0.1934**	**6.0679**	**0.3072**	**6.3751**	**1.6615**	**0.2939**	**1.9554**		**21,256.6909**	**21,256.6909**	**1.1761**	**3.3528**	**22,285.2402**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.7846	0.0000	7.7846	3.9579	0.0000	3.9579			0.0000			0.0000
Off-Road	0.4656	2.0175	20.8690	0.0381		0.0621	0.0621		0.0621	0.0621	0.0000	3,687.3081	3,687.3081	1.1926		3,717.1219
Total	**0.4656**	**2.0175**	**20.8690**	**0.0381**	**7.7846**	**0.0621**	**7.8467**	**3.9579**	**0.0621**	**4.0200**	**0.0000**	**3,687.3081**	**3,687.3081**	**1.1926**		**3,717.1219**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.7227	40.4013	11.3621	0.1916	5.8667	0.3061	6.1728	1.6081	0.2929	1.9010		21,078.5643	21,078.5643	1.1718	3.3488	22,105.7932
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0575	0.0386	0.6314	1.7600e-003	0.2012	1.1300e-003	0.2023	0.0534	1.0400e-003	0.0544		178.1267	178.1267	4.3200e-003	4.0700e-003	179.4470
Total	**0.7801**	**40.4399**	**11.9935**	**0.1934**	**6.0679**	**0.3072**	**6.3751**	**1.6615**	**0.2939**	**1.9554**		**21,256.6909**	**21,256.6909**	**1.1761**	**3.3528**	**22,285.2402**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.1281	0.0000	7.1281	3.4316	0.0000	3.4316			0.0000			0.0000
Off-Road	1.7109	17.9359	14.7507	0.0297		0.7749	0.7749		0.7129	0.7129		2,872.6910	2,872.6910	0.9291		2,895.9182
Total	**1.7109**	**17.9359**	**14.7507**	**0.0297**	**7.1281**	**0.7749**	**7.9030**	**3.4316**	**0.7129**	**4.1446**		**2,872.6910**	**2,872.6910**	**0.9291**		**2,895.9182**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1084	6.0590	1.7040	0.0287	0.8798	0.0459	0.9257	0.2412	0.0439	0.2851		3,161.1562	3,161.1562	0.1757	0.5022	3,315.2099
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0479	0.0321	0.5262	1.4700e-003	0.1677	9.4000e-004	0.1686	0.0445	8.7000e-004	0.0453		148.4389	148.4389	3.6000e-003	3.3900e-003	149.5392
Total	**0.1563**	**6.0911**	**2.2302**	**0.0302**	**1.0475**	**0.0469**	**1.0943**	**0.2856**	**0.0448**	**0.3304**		**3,309.5951**	**3,309.5951**	**0.1793**	**0.5056**	**3,464.7491**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.7800	0.0000	2.7800	1.3383	0.0000	1.3383			0.0000			0.0000
Off-Road	0.3632	1.5737	17.7527	0.0297		0.0484	0.0484		0.0484	0.0484	0.0000	2,872.6910	2,872.6910	0.9291		2,895.9182
Total	**0.3632**	**1.5737**	**17.7527**	**0.0297**	**2.7800**	**0.0484**	**2.8284**	**1.3383**	**0.0484**	**1.3868**	**0.0000**	**2,872.6910**	**2,872.6910**	**0.9291**		**2,895.9182**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1084	6.0590	1.7040	0.0287	0.8798	0.0459	0.9257	0.2412	0.0439	0.2851		3,161.1562	3,161.1562	0.1757	0.5022	3,315.2099
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0479	0.0321	0.5262	1.4700e-003	0.1677	9.4000e-004	0.1686	0.0445	8.7000e-004	0.0453		148.4389	148.4389	3.6000e-003	3.3900e-003	149.5392
Total	**0.1563**	**6.0911**	**2.2302**	**0.0302**	**1.0475**	**0.0469**	**1.0943**	**0.2856**	**0.0448**	**0.3304**		**3,309.5951**	**3,309.5951**	**0.1793**	**0.5056**	**3,464.7491**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0542	1.7787	0.7003	8.9200e-003	0.3138	0.0104	0.3241	0.0903	9.9100e-003	0.1002		960.5515	960.5515	0.0323	0.1391	1,002.7980
Worker	0.3703	0.2485	4.0691	0.0114	1.2966	7.2800e-003	1.3039	0.3439	6.7000e-003	0.3506		1,147.9274	1,147.9274	0.0278	0.0262	1,156.4363
Total	**0.4245**	**2.0272**	**4.7694**	**0.0203**	**1.6104**	**0.0176**	**1.6280**	**0.4342**	**0.0166**	**0.4508**		**2,108.4789**	**2,108.4789**	**0.0601**	**0.1653**	**2,159.2342**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3278	2.2347	17.4603	0.0269		0.0408	0.0408		0.0408	0.0408	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**0.3278**	**2.2347**	**17.4603**	**0.0269**		**0.0408**	**0.0408**		**0.0408**	**0.0408**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0542	1.7787	0.7003	8.9200e-003	0.3138	0.0104	0.3241	0.0903	9.9100e-003	0.1002		960.5515	960.5515	0.0323	0.1391	1,002.7980
Worker	0.3703	0.2485	4.0691	0.0114	1.2966	7.2800e-003	1.3039	0.3439	6.7000e-003	0.3506		1,147.9274	1,147.9274	0.0278	0.0262	1,156.4363
Total	**0.4245**	**2.0272**	**4.7694**	**0.0203**	**1.6104**	**0.0176**	**1.6280**	**0.4342**	**0.0166**	**0.4508**		**2,108.4789**	**2,108.4789**	**0.0601**	**0.1653**	**2,159.2342**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.5830					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.6157**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0479	0.0321	0.5262	1.4700e-003	0.1677	9.4000e-004	0.1686	0.0445	8.7000e-004	0.0453		148.4389	148.4389	3.6000e-003	3.3900e-003	149.5392
Total	**0.0479**	**0.0321**	**0.5262**	**1.4700e-003**	**0.1677**	**9.4000e-004**	**0.1686**	**0.0445**	**8.7000e-004**	**0.0453**		**148.4389**	**148.4389**	**3.6000e-003**	**3.3900e-003**	**149.5392**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2805	1.2154	17.2957	0.0228		0.0374	0.0374		0.0374	0.0374	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.5830					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8634**	**1.2154**	**17.2957**	**0.0228**		**0.0374**	**0.0374**		**0.0374**	**0.0374**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0479	0.0321	0.5262	1.4700e-003	0.1677	9.4000e-004	0.1686	0.0445	8.7000e-004	0.0453		148.4389	148.4389	3.6000e-003	3.3900e-003	149.5392
Total	**0.0479**	**0.0321**	**0.5262**	**1.4700e-003**	**0.1677**	**9.4000e-004**	**0.1686**	**0.0445**	**8.7000e-004**	**0.0453**		**148.4389**	**148.4389**	**3.6000e-003**	**3.3900e-003**	**149.5392**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.5830					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.5711**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**		**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0447	0.0287	0.4900	1.4300e-003	0.1677	9.0000e-004	0.1686	0.0445	8.3000e-004	0.0453		144.0995	144.0995	3.2600e-003	3.1600e-003	145.1216
Total	**0.0447**	**0.0287**	**0.4900**	**1.4300e-003**	**0.1677**	**9.0000e-004**	**0.1686**	**0.0445**	**8.3000e-004**	**0.0453**		**144.0995**	**144.0995**	**3.2600e-003**	**3.1600e-003**	**145.1216**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2805	1.2154	17.2957	0.0228		0.0374	0.0374		0.0374	0.0374	0.0000	2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.5830					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8634**	**1.2154**	**17.2957**	**0.0228**		**0.0374**	**0.0374**		**0.0374**	**0.0374**	**0.0000**	**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0447	0.0287	0.4900	1.4300e-003	0.1677	9.0000e-004	0.1686	0.0445	8.3000e-004	0.0453		144.0995	144.0995	3.2600e-003	3.1600e-003	145.1216
Total	**0.0447**	**0.0287**	**0.4900**	**1.4300e-003**	**0.1677**	**9.0000e-004**	**0.1686**	**0.0445**	**8.3000e-004**	**0.0453**		**144.0995**	**144.0995**	**3.2600e-003**	**3.1600e-003**	**145.1216**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	5.0025					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**5.1832**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0685	0.0440	0.7514	2.1900e-003	0.2571	1.3800e-003	0.2585	0.0682	1.2700e-003	0.0695		220.9525	220.9525	5.0000e-003	4.8400e-003	222.5198
Total	**0.0685**	**0.0440**	**0.7514**	**2.1900e-003**	**0.2571**	**1.3800e-003**	**0.2585**	**0.0682**	**1.2700e-003**	**0.0695**		**220.9525**	**220.9525**	**5.0000e-003**	**4.8400e-003**	**222.5198**

Temecula Hospital SEIR Construction - Phase 2 [Mitigated Run] - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	5.0025					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**5.0322**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0685	0.0440	0.7514	2.1900e-003	0.2571	1.3800e-003	0.2585	0.0682	1.2700e-003	0.0695		220.9525	220.9525	5.0000e-003	4.8400e-003	222.5198
Total	**0.0685**	**0.0440**	**0.7514**	**2.1900e-003**	**0.2571**	**1.3800e-003**	**0.2585**	**0.0682**	**1.2700e-003**	**0.0695**		**220.9525**	**220.9525**	**5.0000e-003**	**4.8400e-003**	**222.5198**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Hospital	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Hospital	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Hospital	0.541709	0.062136	0.185590	0.128486	0.023783	0.006533	0.012157	0.009216	0.000814	0.000497	0.024669	0.000753	0.003657
Parking Lot	0.541709	0.062136	0.185590	0.128486	0.023783	0.006533	0.012157	0.009216	0.000814	0.000497	0.024669	0.000753	0.003657

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Hospital	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Hospital	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.5900e-003	5.5000e-004	0.0607	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004		0.1304	0.1304	3.4000e-004		0.1389
Unmitigated	5.5900e-003	5.5000e-004	0.0607	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004		0.1304	0.1304	3.4000e-004		0.1389

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.5900e-003	5.5000e-004	0.0607	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004		0.1304	0.1304	3.4000e-004		0.1389
Total	**5.5900e-003**	**5.5000e-004**	**0.0607**	**0.0000**		**2.2000e-004**	**2.2000e-004**		**2.2000e-004**	**2.2000e-004**		**0.1304**	**0.1304**	**3.4000e-004**		**0.1389**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.5900e-003	5.5000e-004	0.0607	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004		0.1304	0.1304	3.4000e-004		0.1389
Total	**5.5900e-003**	**5.5000e-004**	**0.0607**	**0.0000**		**2.2000e-004**	**2.2000e-004**		**2.2000e-004**	**2.2000e-004**		**0.1304**	**0.1304**	**3.4000e-004**		**0.1389**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Temecula Hospital SEIR Construction - Phase 3

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Hospital	145.00	1000sqft	3.33	145,000.00	0
Medical Office Building	80.00	1000sqft	1.84	80,000.00	0
Unrefrigerated Warehouse-No Rail	14.00	1000sqft	0.32	14,000.00	0
Parking Lot	508.00	Space	4.57	203,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2025
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	263	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Construction Run only

Land Use - Phase 3 Construction
Existing Hospital Expansion - 20,000 sqft
2# Hospital Tower - 125,000 sqft
Medical Office Building - 80,000 sqft
Utility Plant - 14,000 sqft
Parking Spaces - 508

Construction Phase - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment -

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Trips and VMT - CalEEMod Defaults Used

On-road Fugitive Dust - CalEEMod Defaults Used

Demolition - No Demolition

Grading - Total Import/Export and Grading quantities were scaled according to the sqft of each phase.
Import Quantity - 30,360 CY
Export Quantity - 9,240 CY
Grading Quantity - 11,880 CY

Architectural Coating - SCAQMD's Rule 1113

Vehicle Trips - No Operations

Vehicle Emission Factors - No Operations

Vehicle Emission Factors - No Operations

Vehicle Emission Factors - No Operations

Road Dust - No Operations

Consumer Products - No Operations

Area Coating - No Operations

Landscape Equipment - No Operations

Energy Use - No Operations

Water And Wastewater - No Operations

Solid Waste - No Operations

Area Mitigation -

Fleet Mix - No Operations

Woodstoves - No Operations

Operational Off-Road Equipment - No Operations

Stationary Sources - Emergency Generators and Fire Pumps - No Operations

Stationary Sources - Emergency Generators and Fire Pumps EF - No Operations

Stationary Sources - Process Boilers - No Operations

Stationary Sources - Process Boilers EF - No Operations

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Stationary Sources - User Defined - No Operations
Land Use Change - No Operations

Sequestration - No Operations

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblArchitecturalCoating	EF_Parking	100.00	50.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	100	0
tblAreaCoating	Area_EF_Nonresidential_Interior	100	0
tblAreaCoating	Area_EF_Parking	100	0
tblAreaCoating	Area_EF_Residential_Exterior	50	0
tblAreaCoating	Area_EF_Residential_Interior	50	0
tblAreaCoating	Area_Nonresidential_Exterior	119500	0
tblAreaCoating	Area_Nonresidential_Interior	358500	0
tblAreaCoating	Area_Parking	12192	0
tblAreaCoating	ReapplicationRatePercent	10	0
tblConsumerProducts	ROG_EF	1.98E-05	0
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	0
tblConsumerProducts	ROG_EF_PesticidesFertilizers	5.152E-08	0
tblEnergyUse	LightingElect	4.52	0.00
tblEnergyUse	LightingElect	3.66	0.00
tblEnergyUse	LightingElect	0.35	0.00
tblEnergyUse	LightingElect	1.17	0.00
tblEnergyUse	NT24E	5.56	0.00
tblEnergyUse	NT24E	2.79	0.00
tblEnergyUse	NT24E	0.82	0.00
tblEnergyUse	NT24NG	6.03	0.00
tblEnergyUse	NT24NG	0.03	0.00
tblEnergyUse	T24E	7.45	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblEnergyUse	T24E	2.74	0.00
tblEnergyUse	T24E	0.33	0.00
tblEnergyUse	T24NG	68.80	0.00
tblEnergyUse	T24NG	3.43	0.00
tblEnergyUse	T24NG	1.98	0.00
tblGrading	MaterialExported	0.00	9,240.00
tblGrading	MaterialImported	0.00	11,880.00
tblGrading	MaterialImported	0.00	30,360.00
tblLandscapeEquipment	NumberSummerDays	250	0
tblProjectCharacteristics	CH4IntensityFactor	0.033	0
tblProjectCharacteristics	CO2IntensityFactor	390.98	263
tblProjectCharacteristics	N2OIntensityFactor	0.004	0
tblRoadDust	MaterialMoistureContent	0.5	0
tblRoadDust	MaterialSiltContent	4.3	0
tblRoadDust	MeanVehicleSpeed	40	0
tblRoadDust	MobileAverageVehicleWeight	2.4	0
tblRoadDust	RoadPercentPave	100	0
tblRoadDust	RoadSiltLoading	0.1	0
tblSolidWaste	SolidWasteGenerationRate	1,566.00	0.00
tblSolidWaste	SolidWasteGenerationRate	864.00	0.00
tblSolidWaste	SolidWasteGenerationRate	13.16	0.00
tblWater	IndoorWaterUseRate	18,194,677.95	0.00
tblWater	IndoorWaterUseRate	10,038,443.00	0.00
tblWater	IndoorWaterUseRate	3,237,500.00	0.00
tblWater	OutdoorWaterUseRate	3,465,652.94	0.00
tblWater	OutdoorWaterUseRate	1,912,084.38	0.00

2.0 Emissions Summary

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.3086	2.9955	3.1221	9.1000e-003	0.5461	0.1105	0.6565	0.1889	0.1034	0.2923	0.0000	836.9403	836.9403	0.1116	0.0539	855.7890
2024	0.6680	0.7704	1.0649	2.4900e-003	0.0950	0.0309	0.1258	0.0256	0.0290	0.0546	0.0000	224.1842	224.1842	0.0317	8.7700e-003	227.5891
Maximum	**0.6680**	**2.9955**	**3.1221**	**9.1000e-003**	**0.5461**	**0.1105**	**0.6565**	**0.1889**	**0.1034**	**0.2923**	**0.0000**	**836.9403**	**836.9403**	**0.1116**	**0.0539**	**855.7890**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.3086	2.9955	3.1221	9.1000e-003	0.5461	0.1105	0.6565	0.1889	0.1034	0.2923	0.0000	836.9399	836.9399	0.1116	0.0539	855.7886
2024	0.6680	0.7704	1.0649	2.4900e-003	0.0950	0.0309	0.1258	0.0256	0.0290	0.0546	0.0000	224.1841	224.1841	0.0317	8.7700e-003	227.5890
Maximum	**0.6680**	**2.9955**	**3.1221**	**9.1000e-003**	**0.5461**	**0.1105**	**0.6565**	**0.1889**	**0.1034**	**0.2923**	**0.0000**	**836.9399**	**836.9399**	**0.1116**	**0.0539**	**855.7886**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2023	3-31-2023	1.3496	1.3496
2	4-1-2023	6-30-2023	0.6344	0.6344
3	7-1-2023	9-30-2023	0.6414	0.6414
4	10-1-2023	12-31-2023	0.6476	0.6476
5	1-1-2024	3-31-2024	0.6045	0.6045
6	4-1-2024	6-30-2024	0.8204	0.8204
		Highest	1.3496	1.3496

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	1.6667	1.9517	16.7813	0.0377	0.5841	0.0276	0.6116	0.2323	0.0256	0.2579	0.0000	3,485.5967	3,485.5967	0.2284	0.1563	3,537.8759
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.6667**	**1.9517**	**16.7813**	**0.0377**	**0.5841**	**0.0276**	**0.6116**	**0.2323**	**0.0256**	**0.2579**	**0.0000**	**3,485.5967**	**3,485.5967**	**0.2284**	**0.1563**	**3,537.8759**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	1.6667	1.9517	16.7813	0.0377	0.5841	0.0276	0.6116	0.2323	0.0256	0.2579	0.0000	3,485.5967	3,485.5967	0.2284	0.1563	3,537.8759
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.6667**	**1.9517**	**16.7813**	**0.0377**	**0.5841**	**0.0276**	**0.6116**	**0.2323**	**0.0256**	**0.2579**	**0.0000**	**3,485.5967**	**3,485.5967**	**0.2284**	**0.1563**	**3,537.8759**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2023	1/13/2023	5	10	
2	Grading	Grading	1/14/2023	2/24/2023	5	30	
3	Building Construction	Building Construction	2/25/2023	4/19/2024	5	300	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4	Paving	Paving	4/20/2024	5/17/2024	5	20	
5	Architectural Coating	Architectural Coating	5/18/2024	6/14/2024	5	20	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 90

Acres of Paving: 4.57

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 358,500; Non-Residential Outdoor: 119,500; Striped Parking Area: 12,192 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	4,995.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	1,498.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	163.00	72.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	33.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1005	0.0000	0.1005	0.0509	0.0000	0.0509	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0133	0.1376	0.0912	1.9000e-004		6.3300e-003	6.3300e-003		5.8200e-003	5.8200e-003	0.0000	16.7254	16.7254	5.4100e-003	0.0000	16.8606
Total	**0.0133**	**0.1376**	**0.0912**	**1.9000e-004**	**0.1005**	**6.3300e-003**	**0.1069**	**0.0509**	**5.8200e-003**	**0.0567**	**0.0000**	**16.7254**	**16.7254**	**5.4100e-003**	**0.0000**	**16.8606**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.2300e-003	0.3171	0.0851	1.4300e-003	0.0430	2.2800e-003	0.0453	0.0118	2.1800e-003	0.0140	0.0000	142.4572	142.4572	7.9100e-003	0.0226	149.3996
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	2.2000e-004	2.9400e-003	1.0000e-005	9.9000e-004	1.0000e-005	9.9000e-004	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.7727	0.7727	2.0000e-005	2.0000e-005	0.7792
Total	**5.5100e-003**	**0.3173**	**0.0880**	**1.4400e-003**	**0.0440**	**2.2900e-003**	**0.0463**	**0.0121**	**2.1900e-003**	**0.0143**	**0.0000**	**143.2300**	**143.2300**	**7.9300e-003**	**0.0227**	**150.1787**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1005	0.0000	0.1005	0.0509	0.0000	0.0509	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0133	0.1376	0.0912	1.9000e-004		6.3300e-003	6.3300e-003		5.8200e-003	5.8200e-003	0.0000	16.7253	16.7253	5.4100e-003	0.0000	16.8606
Total	**0.0133**	**0.1376**	**0.0912**	**1.9000e-004**	**0.1005**	**6.3300e-003**	**0.1069**	**0.0509**	**5.8200e-003**	**0.0567**	**0.0000**	**16.7253**	**16.7253**	**5.4100e-003**	**0.0000**	**16.8606**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.2300e-003	0.3171	0.0851	1.4300e-003	0.0430	2.2800e-003	0.0453	0.0118	2.1800e-003	0.0140	0.0000	142.4572	142.4572	7.9100e-003	0.0226	149.3996
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	2.2000e-004	2.9400e-003	1.0000e-005	9.9000e-004	1.0000e-005	9.9000e-004	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.7727	0.7727	2.0000e-005	2.0000e-005	0.7792
Total	**5.5100e-003**	**0.3173**	**0.0880**	**1.4400e-003**	**0.0440**	**2.2900e-003**	**0.0463**	**0.0121**	**2.1900e-003**	**0.0143**	**0.0000**	**143.2300**	**143.2300**	**7.9300e-003**	**0.0227**	**150.1787**

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1387	0.0000	0.1387	0.0549	0.0000	0.0549	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0498	0.5177	0.4208	9.3000e-004		0.0214	0.0214		0.0197	0.0197	0.0000	81.8028	81.8028	0.0265	0.0000	82.4642
Total	**0.0498**	**0.5177**	**0.4208**	**9.3000e-004**	**0.1387**	**0.0214**	**0.1601**	**0.0549**	**0.0197**	**0.0746**	**0.0000**	**81.8028**	**81.8028**	**0.0265**	**0.0000**	**82.4642**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.5700e-003	0.0951	0.0255	4.3000e-004	0.0129	6.8000e-004	0.0136	3.5400e-003	6.5000e-004	4.1900e-003	0.0000	42.7229	42.7229	2.3700e-003	6.7900e-003	44.8049
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.4000e-004	7.2000e-004	9.7900e-003	3.0000e-005	3.2900e-003	2.0000e-005	3.3100e-003	8.7000e-004	2.0000e-005	8.9000e-004	0.0000	2.5758	2.5758	7.0000e-005	7.0000e-005	2.5972
Total	**2.5100e-003**	**0.0958**	**0.0353**	**4.6000e-004**	**0.0162**	**7.0000e-004**	**0.0169**	**4.4100e-003**	**6.7000e-004**	**5.0800e-003**	**0.0000**	**45.2987**	**45.2987**	**2.4400e-003**	**6.8600e-003**	**47.4021**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1387	0.0000	0.1387	0.0549	0.0000	0.0549	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0498	0.5177	0.4208	9.3000e-004		0.0214	0.0214		0.0197	0.0197	0.0000	81.8027	81.8027	0.0265	0.0000	82.4641
Total	**0.0498**	**0.5177**	**0.4208**	**9.3000e-004**	**0.1387**	**0.0214**	**0.1601**	**0.0549**	**0.0197**	**0.0746**	**0.0000**	**81.8027**	**81.8027**	**0.0265**	**0.0000**	**82.4641**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.5700e-003	0.0951	0.0255	4.3000e-004	0.0129	6.8000e-004	0.0136	3.5400e-003	6.5000e-004	4.1900e-003	0.0000	42.7229	42.7229	2.3700e-003	6.7900e-003	44.8049
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.4000e-004	7.2000e-004	9.7900e-003	3.0000e-005	3.2900e-003	2.0000e-005	3.3100e-003	8.7000e-004	2.0000e-005	8.9000e-004	0.0000	2.5758	2.5758	7.0000e-005	7.0000e-005	2.5972
Total	**2.5100e-003**	**0.0958**	**0.0353**	**4.6000e-004**	**0.0162**	**7.0000e-004**	**0.0169**	**4.4100e-003**	**6.7000e-004**	**5.0800e-003**	**0.0000**	**45.2987**	**45.2987**	**2.4400e-003**	**6.8600e-003**	**47.4021**

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1730	1.5823	1.7868	2.9600e-003		0.0770	0.0770		0.0724	0.0724	0.0000	254.9852	254.9852	0.0607	0.0000	256.5017
Total	**0.1730**	**1.5823**	**1.7868**	**2.9600e-003**		**0.0770**	**0.0770**		**0.0724**	**0.0724**	**0.0000**	**254.9852**	**254.9852**	**0.0607**	**0.0000**	**256.5017**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.5600e-003	0.3017	0.1149	1.4400e-003	0.0500	1.6800e-003	0.0516	0.0144	1.6000e-003	0.0160	0.0000	140.9535	140.9535	4.7300e-003	0.0204	147.1577
Worker	0.0559	0.0430	0.5851	1.6800e-003	0.1967	1.1300e-003	0.1978	0.0522	1.0400e-003	0.0533	0.0000	153.9448	153.9448	3.9600e-003	3.9600e-003	155.2240
Total	**0.0644**	**0.3447**	**0.7000**	**3.1200e-003**	**0.2467**	**2.8100e-003**	**0.2495**	**0.0667**	**2.6400e-003**	**0.0693**	**0.0000**	**294.8983**	**294.8983**	**8.6900e-003**	**0.0244**	**302.3817**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1730	1.5823	1.7868	2.9600e-003		0.0770	0.0770		0.0724	0.0724	0.0000	254.9849	254.9849	0.0607	0.0000	256.5013
Total	**0.1730**	**1.5823**	**1.7868**	**2.9600e-003**		**0.0770**	**0.0770**		**0.0724**	**0.0724**	**0.0000**	**254.9849**	**254.9849**	**0.0607**	**0.0000**	**256.5013**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.5600e-003	0.3017	0.1149	1.4400e-003	0.0500	1.6800e-003	0.0516	0.0144	1.6000e-003	0.0160	0.0000	140.9535	140.9535	4.7300e-003	0.0204	147.1577
Worker	0.0559	0.0430	0.5851	1.6800e-003	0.1967	1.1300e-003	0.1978	0.0522	1.0400e-003	0.0533	0.0000	153.9448	153.9448	3.9600e-003	3.9600e-003	155.2240
Total	**0.0644**	**0.3447**	**0.7000**	**3.1200e-003**	**0.2467**	**2.8100e-003**	**0.2495**	**0.0667**	**2.6400e-003**	**0.0693**	**0.0000**	**294.8983**	**294.8983**	**8.6900e-003**	**0.0244**	**302.3817**

3.4 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0589	0.5378	0.6467	1.0800e-003		0.0245	0.0245		0.0231	0.0231	0.0000	92.7396	92.7396	0.0219	0.0000	93.2879
Total	**0.0589**	**0.5378**	**0.6467**	**1.0800e-003**		**0.0245**	**0.0245**		**0.0231**	**0.0231**	**0.0000**	**92.7396**	**92.7396**	**0.0219**	**0.0000**	**93.2879**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.0400e-003	0.1102	0.0411	5.2000e-004	0.0182	6.1000e-004	0.0188	5.2400e-003	5.8000e-004	5.8300e-003	0.0000	50.5191	50.5191	1.7200e-003	7.3300e-003	52.7464
Worker	0.0190	0.0140	0.1982	5.9000e-004	0.0715	3.9000e-004	0.0719	0.0190	3.6000e-004	0.0194	0.0000	54.3448	54.3448	1.3000e-003	1.3400e-003	54.7768
Total	**0.0220**	**0.1242**	**0.2393**	**1.1100e-003**	**0.0897**	**1.0000e-003**	**0.0907**	**0.0242**	**9.4000e-004**	**0.0252**	**0.0000**	**104.8639**	**104.8639**	**3.0200e-003**	**8.6700e-003**	**107.5233**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0589	0.5378	0.6467	1.0800e-003		0.0245	0.0245		0.0231	0.0231	0.0000	92.7395	92.7395	0.0219	0.0000	93.2878
Total	**0.0589**	**0.5378**	**0.6467**	**1.0800e-003**		**0.0245**	**0.0245**		**0.0231**	**0.0231**	**0.0000**	**92.7395**	**92.7395**	**0.0219**	**0.0000**	**93.2878**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.0400e-003	0.1102	0.0411	5.2000e-004	0.0182	6.1000e-004	0.0188	5.2400e-003	5.8000e-004	5.8300e-003	0.0000	50.5191	50.5191	1.7200e-003	7.3300e-003	52.7464
Worker	0.0190	0.0140	0.1982	5.9000e-004	0.0715	3.9000e-004	0.0719	0.0190	3.6000e-004	0.0194	0.0000	54.3448	54.3448	1.3000e-003	1.3400e-003	54.7768
Total	**0.0220**	**0.1242**	**0.2393**	**1.1100e-003**	**0.0897**	**1.0000e-003**	**0.0907**	**0.0242**	**9.4000e-004**	**0.0252**	**0.0000**	**104.8639**	**104.8639**	**3.0200e-003**	**8.6700e-003**	**107.5233**

3.5 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.8800e-003	0.0953	0.1463	2.3000e-004		4.6900e-003	4.6900e-003		4.3100e-003	4.3100e-003	0.0000	20.0265	20.0265	6.4800e-003	0.0000	20.1885
Paving	5.9900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0159**	**0.0953**	**0.1463**	**2.3000e-004**		**4.6900e-003**	**4.6900e-003**		**4.3100e-003**	**4.3100e-003**	**0.0000**	**20.0265**	**20.0265**	**6.4800e-003**	**0.0000**	**20.1885**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	3.2000e-004	4.5600e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6500e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.2503	1.2503	3.0000e-005	3.0000e-005	1.2602
Total	**4.4000e-004**	**3.2000e-004**	**4.5600e-003**	**1.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6500e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.2503**	**1.2503**	**3.0000e-005**	**3.0000e-005**	**1.2602**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.8800e-003	0.0953	0.1463	2.3000e-004		4.6900e-003	4.6900e-003		4.3100e-003	4.3100e-003	0.0000	20.0265	20.0265	6.4800e-003	0.0000	20.1884
Paving	5.9900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0159**	**0.0953**	**0.1463**	**2.3000e-004**		**4.6900e-003**	**4.6900e-003**		**4.3100e-003**	**4.3100e-003**	**0.0000**	**20.0265**	**20.0265**	**6.4800e-003**	**0.0000**	**20.1884**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	3.2000e-004	4.5600e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6500e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.2503	1.2503	3.0000e-005	3.0000e-005	1.2602
Total	**4.4000e-004**	**3.2000e-004**	**4.5600e-003**	**1.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6500e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.2503**	**1.2503**	**3.0000e-005**	**3.0000e-005**	**1.2602**

3.6 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.5680					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8100e-003	0.0122	0.0181	3.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	2.5533	2.5533	1.4000e-004	0.0000	2.5569
Total	**0.5698**	**0.0122**	**0.0181**	**3.0000e-005**		**6.1000e-004**	**6.1000e-004**		**6.1000e-004**	**6.1000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.4000e-004**	**0.0000**	**2.5569**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.6000e-004	7.1000e-004	0.0100	3.0000e-005	3.6200e-003	2.0000e-005	3.6400e-003	9.6000e-004	2.0000e-005	9.8000e-004	0.0000	2.7506	2.7506	7.0000e-005	7.0000e-005	2.7725
Total	**9.6000e-004**	**7.1000e-004**	**0.0100**	**3.0000e-005**	**3.6200e-003**	**2.0000e-005**	**3.6400e-003**	**9.6000e-004**	**2.0000e-005**	**9.8000e-004**	**0.0000**	**2.7506**	**2.7506**	**7.0000e-005**	**7.0000e-005**	**2.7725**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.5680					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8100e-003	0.0122	0.0181	3.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	2.5533	2.5533	1.4000e-004	0.0000	2.5568
Total	**0.5698**	**0.0122**	**0.0181**	**3.0000e-005**		**6.1000e-004**	**6.1000e-004**		**6.1000e-004**	**6.1000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.4000e-004**	**0.0000**	**2.5568**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.6000e-004	7.1000e-004	0.0100	3.0000e-005	3.6200e-003	2.0000e-005	3.6400e-003	9.6000e-004	2.0000e-005	9.8000e-004	0.0000	2.7506	2.7506	7.0000e-005	7.0000e-005	2.7725
Total	**9.6000e-004**	**7.1000e-004**	**0.0100**	**3.0000e-005**	**3.6200e-003**	**2.0000e-005**	**3.6400e-003**	**9.6000e-004**	**2.0000e-005**	**9.8000e-004**	**0.0000**	**2.7506**	**2.7506**	**7.0000e-005**	**7.0000e-005**	**2.7725**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.6667	1.9517	16.7813	0.0377	0.5841	0.0276	0.6116	0.2323	0.0256	0.2579	0.0000	3,485.5967	3,485.5967	0.2284	0.1563	3,537.8759
Unmitigated	1.6667	1.9517	16.7813	0.0377	0.5841	0.0276	0.6116	0.2323	0.0256	0.2579	0.0000	3,485.5967	3,485.5967	0.2284	0.1563	3,537.8759

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Hospital	1,554.40	1,119.40	981.65	5,468,036	5,468,036
Medical Office Building	2,784.00	685.60	113.60	5,454,218	5,454,218
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	24.36	24.36	24.36	104,400	104,400
Total	4,362.76	1,829.36	1,119.61	11,026,654	11,026,654

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Hospital	16.60	8.40	6.90	64.90	16.10	19.00	73	25	2
Medical Office Building	16.60	8.40	6.90	29.60	51.40	19.00	60	30	10
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Hospital	0.541709	0.062136	0.185590	0.128486	0.023783	0.006533	0.012157	0.009216	0.000814	0.000497	0.024669	0.000753	0.003657
Medical Office Building	0.541709	0.062136	0.185590	0.128486	0.023783	0.006533	0.012157	0.009216	0.000814	0.000497	0.024669	0.000753	0.003657
Parking Lot	0.541709	0.062136	0.185590	0.128486	0.023783	0.006533	0.012157	0.009216	0.000814	0.000497	0.024669	0.000753	0.003657
Unrefrigerated Warehouse-No Rail	0.541709	0.062136	0.185590	0.128486	0.023783	0.006533	0.012157	0.009216	0.000814	0.000497	0.024669	0.000753	0.003657

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Hospital	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Hospital	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Hospital	0	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Hospital	0	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Hospital	0 / 0	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Hospital	0 / 0	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Hospital	0	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Hospital	0	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Equipment Type	Number

11.0 Vegetation

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Temecula Hospital SEIR Construction - Phase 3 [Mitigated Run]

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Hospital	145.00	1000sqft	3.33	145,000.00	0
Medical Office Building	80.00	1000sqft	1.84	80,000.00	0
Unrefrigerated Warehouse-No Rail	14.00	1000sqft	0.32	14,000.00	0
Parking Lot	508.00	Space	4.57	203,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2025
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	263	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Construction Run only

Land Use - Phase 3 Construction
Existing Hospital Expansion - 20,000 sqft
2# Hospital Tower - 125,000 sqft
Medical Office Building - 80,000 sqft
Utility Plant - 14,000 sqft
Parking Spaces - 508

Construction Phase - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment -

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Trips and VMT - CalEEMod Defaults Used

On-road Fugitive Dust - CalEEMod Defaults Used

Demolition - No Demolition

Grading - Total Import/Export and Grading quantities were scaled according to the sqft of each phase.
Import Quantity - 30,360 CY
Export Quantity - 9,240 CY
Grading Quantity - 11,880 CY

Architectural Coating - Archetectural coating mititgation measure applied

Vehicle Trips - No Operations

Vehicle Emission Factors - No Operations

Vehicle Emission Factors - No Operations

Vehicle Emission Factors - No Operations

Road Dust - No Operations

Woodstoves - No Operations

Consumer Products - No Operations

Area Coating - No Operations

Landscape Equipment - No Operations

Energy Use - No Operations

Water And Wastewater - No Operations

Solid Waste - No Operations

Land Use Change - No Operations

Sequestration - No Operations

Construction Off-road Equipment Mitigation - Tier 4 mitigation measure applied

Area Mitigation -

Operational Off-Road Equipment - No Operations

Fleet Mix - No Operations

Stationary Sources - Emergency Generators and Fire Pumps - No Operations

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Stationary Sources - Process Boilers - No Operations
Stationary Sources - User Defined - No Operations

Stationary Sources - Emergency Generators and Fire Pumps EF - No Operations

Stationary Sources - Process Boilers EF - No Operations

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	10.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	10.00
tblArchitecturalCoating	EF_Parking	100.00	10.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	100	0
tblAreaCoating	Area_EF_Nonresidential_Interior	100	0
tblAreaCoating	Area_EF_Parking	100	0
tblAreaCoating	Area_EF_Residential_Exterior	50	0
tblAreaCoating	Area_EF_Residential_Interior	50	0
tblAreaCoating	Area_Nonresidential_Exterior	119500	0
tblAreaCoating	Area_Nonresidential_Interior	358500	0
tblAreaCoating	Area_Parking	12192	0
tblAreaCoating	ReapplicationRatePercent	10	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConsumerProducts	ROG_EF	1.98E-05	0
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	0
tblConsumerProducts	ROG_EF_PesticidesFertilizers	5.152E-08	0
tblEnergyUse	LightingElect	4.52	0.00
tblEnergyUse	LightingElect	3.66	0.00
tblEnergyUse	LightingElect	0.35	0.00
tblEnergyUse	LightingElect	1.17	0.00
tblEnergyUse	NT24E	5.56	0.00
tblEnergyUse	NT24E	2.79	0.00
tblEnergyUse	NT24E	0.82	0.00
tblEnergyUse	NT24NG	6.03	0.00
tblEnergyUse	NT24NG	0.03	0.00
tblEnergyUse	T24E	7.45	0.00
tblEnergyUse	T24E	2.74	0.00
tblEnergyUse	T24E	0.33	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblEnergyUse	T24NG	68.80	0.00
tblEnergyUse	T24NG	3.43	0.00
tblEnergyUse	T24NG	1.98	0.00
tblGrading	MaterialExported	0.00	9,240.00
tblGrading	MaterialImported	0.00	11,880.00
tblGrading	MaterialImported	0.00	30,360.00
tblLandscapeEquipment	NumberSummerDays	250	0
tblProjectCharacteristics	CH4IntensityFactor	0.033	0
tblProjectCharacteristics	CO2IntensityFactor	390.98	263
tblProjectCharacteristics	N2OIntensityFactor	0.004	0
tblRoadDust	MaterialMoistureContent	0.5	0
tblRoadDust	MaterialSiltContent	4.3	0
tblRoadDust	MeanVehicleSpeed	40	0
tblRoadDust	MobileAverageVehicleWeight	2.4	0
tblRoadDust	RoadPercentPave	100	0
tblRoadDust	RoadSiltLoading	0.1	0
tblSolidWaste	SolidWasteGenerationRate	1,566.00	0.00
tblSolidWaste	SolidWasteGenerationRate	864.00	0.00
tblSolidWaste	SolidWasteGenerationRate	13.16	0.00
tblWater	IndoorWaterUseRate	18,194,677.95	0.00
tblWater	IndoorWaterUseRate	10,038,443.00	0.00
tblWater	IndoorWaterUseRate	3,237,500.00	0.00
tblWater	OutdoorWaterUseRate	3,465,652.94	0.00
tblWater	OutdoorWaterUseRate	1,912,084.38	0.00

2.0 Emissions Summary

Temecula Hospital SEIR Construction - Phase 3 [Mitigated Run] - South Coast AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.3085	2.9918	3.1211	9.0800e-003	0.5456	0.1104	0.6560	0.1888	0.1034	0.2921	0.0000	835.2861	835.2861	0.1115	0.0536	854.0542
2024	0.2136	0.7704	1.0649	2.4900e-003	0.0950	0.0309	0.1258	0.0256	0.0290	0.0546	0.0000	224.1842	224.1842	0.0317	8.7700e-003	227.5891
Maximum	**0.3085**	**2.9918**	**3.1211**	**9.0800e-003**	**0.5456**	**0.1104**	**0.6560**	**0.1888**	**0.1034**	**0.2921**	**0.0000**	**835.2861**	**835.2861**	**0.1115**	**0.0536**	**854.0542**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.1222	1.0595	3.3423	9.0800e-003	0.3996	0.0121	0.4117	0.1242	0.0118	0.1360	0.0000	835.2857	835.2857	0.1115	0.0536	854.0538
2024	0.1592	0.2280	1.1436	2.4900e-003	0.0950	3.0800e-003	0.0980	0.0256	3.0200e-003	0.0287	0.0000	224.1841	224.1841	0.0317	8.7700e-003	227.5890
Maximum	**0.1592**	**1.0595**	**3.3423**	**9.0800e-003**	**0.3996**	**0.0121**	**0.4117**	**0.1242**	**0.0118**	**0.1360**	**0.0000**	**835.2857**	**835.2857**	**0.1115**	**0.0536**	**854.0538**

Temecula Hospital SEIR Construction - Phase 3 [Mitigated Run] - South Coast AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	46.09	65.78	-7.16	0.00	22.79	89.26	34.80	30.09	88.80	52.50	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2023	3-31-2023	1.3461	0.5434
2	4-1-2023	6-30-2023	0.6344	0.1991
3	7-1-2023	9-30-2023	0.6414	0.2013
4	10-1-2023	12-31-2023	0.6476	0.2074
5	1-1-2024	3-31-2024	0.6045	0.2031
6	4-1-2024	6-30-2024	0.3660	0.1796
		Highest	1.3461	0.5434

Temecula Hospital SEIR Construction - Phase 3 [Mitigated Run] - South Coast AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	1.6667	1.9517	16.7813	0.0377	0.5841	0.0276	0.6116	0.2323	0.0256	0.2579	0.0000	3,485.5967	3,485.5967	0.2284	0.1563	3,537.8759
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.6667**	**1.9517**	**16.7813**	**0.0377**	**0.5841**	**0.0276**	**0.6116**	**0.2323**	**0.0256**	**0.2579**	**0.0000**	**3,485.5967**	**3,485.5967**	**0.2284**	**0.1563**	**3,537.8759**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	1.6667	1.9517	16.7813	0.0377	0.5841	0.0276	0.6116	0.2323	0.0256	0.2579	0.0000	3,485.5967	3,485.5967	0.2284	0.1563	3,537.8759
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.6667**	**1.9517**	**16.7813**	**0.0377**	**0.5841**	**0.0276**	**0.6116**	**0.2323**	**0.0256**	**0.2579**	**0.0000**	**3,485.5967**	**3,485.5967**	**0.2284**	**0.1563**	**3,537.8759**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2023	1/13/2023	5	10	
2	Grading	Grading	1/14/2023	2/24/2023	5	30	
3	Building Construction	Building Construction	2/25/2023	4/19/2024	5	300	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4	Paving	Paving	4/20/2024	5/17/2024	5	20	
5	Architectural Coating	Architectural Coating	5/18/2024	6/14/2024	5	20	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 90

Acres of Paving: 4.57

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 358,500; Non-Residential Outdoor: 119,500; Striped Parking Area: 12,192 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Temecula Hospital SEIR Construction - Phase 3 [Mitigated Run] - South Coast AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	4,950.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	1,485.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	163.00	72.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	33.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1005	0.0000	0.1005	0.0509	0.0000	0.0509	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0133	0.1376	0.0912	1.9000e-004		6.3300e-003	6.3300e-003		5.8200e-003	5.8200e-003	0.0000	16.7254	16.7254	5.4100e-003	0.0000	16.8606
Total	**0.0133**	**0.1376**	**0.0912**	**1.9000e-004**	**0.1005**	**6.3300e-003**	**0.1069**	**0.0509**	**5.8200e-003**	**0.0567**	**0.0000**	**16.7254**	**16.7254**	**5.4100e-003**	**0.0000**	**16.8606**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.1800e-003	0.3142	0.0843	1.4100e-003	0.0426	2.2600e-003	0.0449	0.0117	2.1600e-003	0.0139	0.0000	141.1738	141.1738	7.8400e-003	0.0224	148.0536
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	2.2000e-004	2.9400e-003	1.0000e-005	9.9000e-004	1.0000e-005	9.9000e-004	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.7727	0.7727	2.0000e-005	2.0000e-005	0.7792
Total	**5.4600e-003**	**0.3144**	**0.0873**	**1.4200e-003**	**0.0436**	**2.2700e-003**	**0.0459**	**0.0120**	**2.1700e-003**	**0.0141**	**0.0000**	**141.9466**	**141.9466**	**7.8600e-003**	**0.0225**	**148.8328**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0392	0.0000	0.0392	0.0198	0.0000	0.0198	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.3300e-003	0.0101	0.1043	1.9000e-004		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	16.7253	16.7253	5.4100e-003	0.0000	16.8606
Total	**2.3300e-003**	**0.0101**	**0.1043**	**1.9000e-004**	**0.0392**	**3.1000e-004**	**0.0395**	**0.0198**	**3.1000e-004**	**0.0201**	**0.0000**	**16.7253**	**16.7253**	**5.4100e-003**	**0.0000**	**16.8606**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.1800e-003	0.3142	0.0843	1.4100e-003	0.0426	2.2600e-003	0.0449	0.0117	2.1600e-003	0.0139	0.0000	141.1738	141.1738	7.8400e-003	0.0224	148.0536
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	2.2000e-004	2.9400e-003	1.0000e-005	9.9000e-004	1.0000e-005	9.9000e-004	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.7727	0.7727	2.0000e-005	2.0000e-005	0.7792
Total	**5.4600e-003**	**0.3144**	**0.0873**	**1.4200e-003**	**0.0436**	**2.2700e-003**	**0.0459**	**0.0120**	**2.1700e-003**	**0.0141**	**0.0000**	**141.9466**	**141.9466**	**7.8600e-003**	**0.0225**	**148.8328**

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1387	0.0000	0.1387	0.0549	0.0000	0.0549	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0498	0.5177	0.4208	9.3000e-004		0.0214	0.0214		0.0197	0.0197	0.0000	81.8028	81.8028	0.0265	0.0000	82.4642
Total	**0.0498**	**0.5177**	**0.4208**	**9.3000e-004**	**0.1387**	**0.0214**	**0.1601**	**0.0549**	**0.0197**	**0.0746**	**0.0000**	**81.8028**	**81.8028**	**0.0265**	**0.0000**	**82.4642**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.5500e-003	0.0943	0.0253	4.2000e-004	0.0128	6.8000e-004	0.0135	3.5100e-003	6.5000e-004	4.1600e-003	0.0000	42.3522	42.3522	2.3500e-003	6.7300e-003	44.4161
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.4000e-004	7.2000e-004	9.7900e-003	3.0000e-005	3.2900e-003	2.0000e-005	3.3100e-003	8.7000e-004	2.0000e-005	8.9000e-004	0.0000	2.5758	2.5758	7.0000e-005	7.0000e-005	2.5972
Total	**2.4900e-003**	**0.0950**	**0.0351**	**4.5000e-004**	**0.0161**	**7.0000e-004**	**0.0168**	**4.3800e-003**	**6.7000e-004**	**5.0500e-003**	**0.0000**	**44.9279**	**44.9279**	**2.4200e-003**	**6.8000e-003**	**47.0133**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0541	0.0000	0.0541	0.0214	0.0000	0.0214	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0114	0.0495	0.4950	9.3000e-004		1.5200e-003	1.5200e-003		1.5200e-003	1.5200e-003	0.0000	81.8027	81.8027	0.0265	0.0000	82.4641
Total	**0.0114**	**0.0495**	**0.4950**	**9.3000e-004**	**0.0541**	**1.5200e-003**	**0.0556**	**0.0214**	**1.5200e-003**	**0.0229**	**0.0000**	**81.8027**	**81.8027**	**0.0265**	**0.0000**	**82.4641**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.5500e-003	0.0943	0.0253	4.2000e-004	0.0128	6.8000e-004	0.0135	3.5100e-003	6.5000e-004	4.1600e-003	0.0000	42.3522	42.3522	2.3500e-003	6.7300e-003	44.4161
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.4000e-004	7.2000e-004	9.7900e-003	3.0000e-005	3.2900e-003	2.0000e-005	3.3100e-003	8.7000e-004	2.0000e-005	8.9000e-004	0.0000	2.5758	2.5758	7.0000e-005	7.0000e-005	2.5972
Total	**2.4900e-003**	**0.0950**	**0.0351**	**4.5000e-004**	**0.0161**	**7.0000e-004**	**0.0168**	**4.3800e-003**	**6.7000e-004**	**5.0500e-003**	**0.0000**	**44.9279**	**44.9279**	**2.4200e-003**	**6.8000e-003**	**47.0133**

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1730	1.5823	1.7868	2.9600e-003		0.0770	0.0770		0.0724	0.0724	0.0000	254.9852	254.9852	0.0607	0.0000	256.5017
Total	**0.1730**	**1.5823**	**1.7868**	**2.9600e-003**		**0.0770**	**0.0770**		**0.0724**	**0.0724**	**0.0000**	**254.9852**	**254.9852**	**0.0607**	**0.0000**	**256.5017**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.5600e-003	0.3017	0.1149	1.4400e-003	0.0500	1.6800e-003	0.0516	0.0144	1.6000e-003	0.0160	0.0000	140.9535	140.9535	4.7300e-003	0.0204	147.1577
Worker	0.0559	0.0430	0.5851	1.6800e-003	0.1967	1.1300e-003	0.1978	0.0522	1.0400e-003	0.0533	0.0000	153.9448	153.9448	3.9600e-003	3.9600e-003	155.2240
Total	**0.0644**	**0.3447**	**0.7000**	**3.1200e-003**	**0.2467**	**2.8100e-003**	**0.2495**	**0.0667**	**2.6400e-003**	**0.0693**	**0.0000**	**294.8983**	**294.8983**	**8.6900e-003**	**0.0244**	**302.3817**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0361	0.2458	1.9206	2.9600e-003		4.4900e-003	4.4900e-003		4.4900e-003	4.4900e-003	0.0000	254.9849	254.9849	0.0607	0.0000	256.5013
Total	**0.0361**	**0.2458**	**1.9206**	**2.9600e-003**		**4.4900e-003**	**4.4900e-003**		**4.4900e-003**	**4.4900e-003**	**0.0000**	**254.9849**	**254.9849**	**0.0607**	**0.0000**	**256.5013**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.5600e-003	0.3017	0.1149	1.4400e-003	0.0500	1.6800e-003	0.0516	0.0144	1.6000e-003	0.0160	0.0000	140.9535	140.9535	4.7300e-003	0.0204	147.1577
Worker	0.0559	0.0430	0.5851	1.6800e-003	0.1967	1.1300e-003	0.1978	0.0522	1.0400e-003	0.0533	0.0000	153.9448	153.9448	3.9600e-003	3.9600e-003	155.2240
Total	**0.0644**	**0.3447**	**0.7000**	**3.1200e-003**	**0.2467**	**2.8100e-003**	**0.2495**	**0.0667**	**2.6400e-003**	**0.0693**	**0.0000**	**294.8983**	**294.8983**	**8.6900e-003**	**0.0244**	**302.3817**

3.4 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0589	0.5378	0.6467	1.0800e-003		0.0245	0.0245		0.0231	0.0231	0.0000	92.7396	92.7396	0.0219	0.0000	93.2879
Total	**0.0589**	**0.5378**	**0.6467**	**1.0800e-003**		**0.0245**	**0.0245**		**0.0231**	**0.0231**	**0.0000**	**92.7396**	**92.7396**	**0.0219**	**0.0000**	**93.2879**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.0400e-003	0.1102	0.0411	5.2000e-004	0.0182	6.1000e-004	0.0188	5.2400e-003	5.8000e-004	5.8300e-003	0.0000	50.5191	50.5191	1.7200e-003	7.3300e-003	52.7464
Worker	0.0190	0.0140	0.1982	5.9000e-004	0.0715	3.9000e-004	0.0719	0.0190	3.6000e-004	0.0194	0.0000	54.3448	54.3448	1.3000e-003	1.3400e-003	54.7768
Total	**0.0220**	**0.1242**	**0.2393**	**1.1100e-003**	**0.0897**	**1.0000e-003**	**0.0907**	**0.0242**	**9.4000e-004**	**0.0252**	**0.0000**	**104.8639**	**104.8639**	**3.0200e-003**	**8.6700e-003**	**107.5233**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0131	0.0894	0.6984	1.0800e-003		1.6300e-003	1.6300e-003		1.6300e-003	1.6300e-003	0.0000	92.7395	92.7395	0.0219	0.0000	93.2878
Total	**0.0131**	**0.0894**	**0.6984**	**1.0800e-003**		**1.6300e-003**	**1.6300e-003**		**1.6300e-003**	**1.6300e-003**	**0.0000**	**92.7395**	**92.7395**	**0.0219**	**0.0000**	**93.2878**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.0400e-003	0.1102	0.0411	5.2000e-004	0.0182	6.1000e-004	0.0188	5.2400e-003	5.8000e-004	5.8300e-003	0.0000	50.5191	50.5191	1.7200e-003	7.3300e-003	52.7464
Worker	0.0190	0.0140	0.1982	5.9000e-004	0.0715	3.9000e-004	0.0719	0.0190	3.6000e-004	0.0194	0.0000	54.3448	54.3448	1.3000e-003	1.3400e-003	54.7768
Total	**0.0220**	**0.1242**	**0.2393**	**1.1100e-003**	**0.0897**	**1.0000e-003**	**0.0907**	**0.0242**	**9.4000e-004**	**0.0252**	**0.0000**	**104.8639**	**104.8639**	**3.0200e-003**	**8.6700e-003**	**107.5233**

3.5 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.8800e-003	0.0953	0.1463	2.3000e-004		4.6900e-003	4.6900e-003		4.3100e-003	4.3100e-003	0.0000	20.0265	20.0265	6.4800e-003	0.0000	20.1885
Paving	5.9900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0159**	**0.0953**	**0.1463**	**2.3000e-004**		**4.6900e-003**	**4.6900e-003**		**4.3100e-003**	**4.3100e-003**	**0.0000**	**20.0265**	**20.0265**	**6.4800e-003**	**0.0000**	**20.1885**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	3.2000e-004	4.5600e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6500e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.2503	1.2503	3.0000e-005	3.0000e-005	1.2602
Total	**4.4000e-004**	**3.2000e-004**	**4.5600e-003**	**1.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6500e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.2503**	**1.2503**	**3.0000e-005**	**3.0000e-005**	**1.2602**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.8000e-003	0.0122	0.1730	2.3000e-004		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004	0.0000	20.0265	20.0265	6.4800e-003	0.0000	20.1884
Paving	5.9900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.7900e-003**	**0.0122**	**0.1730**	**2.3000e-004**		**3.7000e-004**	**3.7000e-004**		**3.7000e-004**	**3.7000e-004**	**0.0000**	**20.0265**	**20.0265**	**6.4800e-003**	**0.0000**	**20.1884**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	3.2000e-004	4.5600e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6500e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.2503	1.2503	3.0000e-005	3.0000e-005	1.2602
Total	**4.4000e-004**	**3.2000e-004**	**4.5600e-003**	**1.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6500e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.2503**	**1.2503**	**3.0000e-005**	**3.0000e-005**	**1.2602**

3.6 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1136					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8100e-003	0.0122	0.0181	3.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	2.5533	2.5533	1.4000e-004	0.0000	2.5569
Total	**0.1154**	**0.0122**	**0.0181**	**3.0000e-005**		**6.1000e-004**	**6.1000e-004**		**6.1000e-004**	**6.1000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.4000e-004**	**0.0000**	**2.5569**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.6000e-004	7.1000e-004	0.0100	3.0000e-005	3.6200e-003	2.0000e-005	3.6400e-003	9.6000e-004	2.0000e-005	9.8000e-004	0.0000	2.7506	2.7506	7.0000e-005	7.0000e-005	2.7725
Total	**9.6000e-004**	**7.1000e-004**	**0.0100**	**3.0000e-005**	**3.6200e-003**	**2.0000e-005**	**3.6400e-003**	**9.6000e-004**	**2.0000e-005**	**9.8000e-004**	**0.0000**	**2.7506**	**2.7506**	**7.0000e-005**	**7.0000e-005**	**2.7725**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1136					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.0000e-004	1.2900e-003	0.0183	3.0000e-005		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	2.5533	2.5533	1.4000e-004	0.0000	2.5568
Total	**0.1139**	**1.2900e-003**	**0.0183**	**3.0000e-005**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**2.5533**	**2.5533**	**1.4000e-004**	**0.0000**	**2.5568**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.6000e-004	7.1000e-004	0.0100	3.0000e-005	3.6200e-003	2.0000e-005	3.6400e-003	9.6000e-004	2.0000e-005	9.8000e-004	0.0000	2.7506	2.7506	7.0000e-005	7.0000e-005	2.7725
Total	**9.6000e-004**	**7.1000e-004**	**0.0100**	**3.0000e-005**	**3.6200e-003**	**2.0000e-005**	**3.6400e-003**	**9.6000e-004**	**2.0000e-005**	**9.8000e-004**	**0.0000**	**2.7506**	**2.7506**	**7.0000e-005**	**7.0000e-005**	**2.7725**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Temecula Hospital SEIR Construction - Phase 3 [Mitigated Run] - South Coast AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.6667	1.9517	16.7813	0.0377	0.5841	0.0276	0.6116	0.2323	0.0256	0.2579	0.0000	3,485.5967	3,485.5967	0.2284	0.1563	3,537.8759
Unmitigated	1.6667	1.9517	16.7813	0.0377	0.5841	0.0276	0.6116	0.2323	0.0256	0.2579	0.0000	3,485.5967	3,485.5967	0.2284	0.1563	3,537.8759

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Hospital	1,554.40	1,119.40	981.65	5,468,036	5,468,036
Medical Office Building	2,784.00	685.60	113.60	5,454,218	5,454,218
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	24.36	24.36	24.36	104,400	104,400
Total	4,362.76	1,829.36	1,119.61	11,026,654	11,026,654

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Hospital	16.60	8.40	6.90	64.90	16.10	19.00	73	25	2
Medical Office Building	16.60	8.40	6.90	29.60	51.40	19.00	60	30	10
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Hospital	0.541709	0.062136	0.185590	0.128486	0.023783	0.006533	0.012157	0.009216	0.000814	0.000497	0.024669	0.000753	0.003657
Medical Office Building	0.541709	0.062136	0.185590	0.128486	0.023783	0.006533	0.012157	0.009216	0.000814	0.000497	0.024669	0.000753	0.003657
Parking Lot	0.541709	0.062136	0.185590	0.128486	0.023783	0.006533	0.012157	0.009216	0.000814	0.000497	0.024669	0.000753	0.003657
Unrefrigerated Warehouse-No Rail	0.541709	0.062136	0.185590	0.128486	0.023783	0.006533	0.012157	0.009216	0.000814	0.000497	0.024669	0.000753	0.003657

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Temecula Hospital SEIR Construction - Phase 3 [Mitigated Run] - South Coast AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Hospital	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Temecula Hospital SEIR Construction - Phase 3 [Mitigated Run] - South Coast AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Hospital	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Hospital	0	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Hospital	0	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Hospital	0 / 0	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Hospital	0 / 0	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Hospital	0	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Hospital	0	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Equipment Type	Number

11.0 Vegetation

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Temecula Hospital SEIR Construction - Phase 3

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Hospital	145.00	1000sqft	3.33	145,000.00	0
Medical Office Building	80.00	1000sqft	1.84	80,000.00	0
Unrefrigerated Warehouse-No Rail	14.00	1000sqft	0.32	14,000.00	0
Parking Lot	508.00	Space	4.57	203,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2025
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	263	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Construction Run only

Land Use - Phase 3 Construction
Existing Hospital Expansion - 20,000 sqft
2# Hospital Tower - 125,000 sqft
Medical Office Building - 80,000 sqft
Utility Plant - 14,000 sqft
Parking Spaces - 508

Construction Phase - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment -

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Trips and VMT - CalEEMod Defaults Used

On-road Fugitive Dust - CalEEMod Defaults Used

Demolition - No Demolition

Grading - Total Import/Export and Grading quantities were scaled according to the sqft of each phase.
Import Quantity - 30,360 CY
Export Quantity - 9,240 CY
Grading Quantity - 11,880 CY

Architectural Coating - SCAQMD's Rule 1113

Vehicle Trips - No Operations

Vehicle Emission Factors - No Operations

Vehicle Emission Factors - No Operations

Vehicle Emission Factors - No Operations

Road Dust - No Operations

Consumer Products - No Operations

Area Coating - No Operations

Landscape Equipment - No Operations

Energy Use - No Operations

Water And Wastewater - No Operations

Solid Waste - No Operations

Area Mitigation -

Fleet Mix - No Operations

Woodstoves - No Operations

Operational Off-Road Equipment - No Operations

Stationary Sources - Emergency Generators and Fire Pumps - No Operations

Stationary Sources - Emergency Generators and Fire Pumps EF - No Operations

Stationary Sources - Process Boilers - No Operations

Stationary Sources - Process Boilers EF - No Operations

Temecula Hospital SEIR Construction - Phase 3 - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Stationary Sources - User Defined - No Operations
Land Use Change - No Operations

Sequestration - No Operations

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblArchitecturalCoating	EF_Parking	100.00	50.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	100	0
tblAreaCoating	Area_EF_Nonresidential_Interior	100	0
tblAreaCoating	Area_EF_Parking	100	0
tblAreaCoating	Area_EF_Residential_Exterior	50	0
tblAreaCoating	Area_EF_Residential_Interior	50	0
tblAreaCoating	Area_Nonresidential_Exterior	119500	0
tblAreaCoating	Area_Nonresidential_Interior	358500	0
tblAreaCoating	Area_Parking	12192	0
tblAreaCoating	ReapplicationRatePercent	10	0
tblConsumerProducts	ROG_EF	1.98E-05	0
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	0
tblConsumerProducts	ROG_EF_PesticidesFertilizers	5.152E-08	0
tblEnergyUse	LightingElect	4.52	0.00
tblEnergyUse	LightingElect	3.66	0.00
tblEnergyUse	LightingElect	0.35	0.00
tblEnergyUse	LightingElect	1.17	0.00
tblEnergyUse	NT24E	5.56	0.00
tblEnergyUse	NT24E	2.79	0.00
tblEnergyUse	NT24E	0.82	0.00
tblEnergyUse	NT24NG	6.03	0.00
tblEnergyUse	NT24NG	0.03	0.00
tblEnergyUse	T24E	7.45	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblEnergyUse	T24E	2.74	0.00
tblEnergyUse	T24E	0.33	0.00
tblEnergyUse	T24NG	68.80	0.00
tblEnergyUse	T24NG	3.43	0.00
tblEnergyUse	T24NG	1.98	0.00
tblGrading	MaterialExported	0.00	9,240.00
tblGrading	MaterialImported	0.00	11,880.00
tblGrading	MaterialImported	0.00	30,360.00
tblLandscapeEquipment	NumberSummerDays	250	0
tblProjectCharacteristics	CH4IntensityFactor	0.033	0
tblProjectCharacteristics	CO2IntensityFactor	390.98	263
tblProjectCharacteristics	N2OIntensityFactor	0.004	0
tblRoadDust	MaterialMoistureContent	0.5	0
tblRoadDust	MaterialSiltContent	4.3	0
tblRoadDust	MeanVehicleSpeed	40	0
tblRoadDust	MobileAverageVehicleWeight	2.4	0
tblRoadDust	RoadPercentPave	100	0
tblRoadDust	RoadSiltLoading	0.1	0
tblSolidWaste	SolidWasteGenerationRate	1,566.00	0.00
tblSolidWaste	SolidWasteGenerationRate	864.00	0.00
tblSolidWaste	SolidWasteGenerationRate	13.16	0.00
tblWater	IndoorWaterUseRate	18,194,677.95	0.00
tblWater	IndoorWaterUseRate	10,038,443.00	0.00
tblWater	IndoorWaterUseRate	3,237,500.00	0.00
tblWater	OutdoorWaterUseRate	3,465,652.94	0.00
tblWater	OutdoorWaterUseRate	1,912,084.38	0.00

2.0 Emissions Summary

Temecula Hospital SEIR Construction - Phase 3 - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	3.7932	87.7311	35.7970	0.3252	29.0431	1.7230	30.7661	12.6185	1.6019	14.2204	0.0000	35,257.0354	35,257.0354	2.9420	4.9913	36,817.9871
2024	57.0801	16.3812	22.5039	0.0554	2.2830	0.6384	2.9213	0.6159	0.6005	1.2164	0.0000	5,512.6980	5,512.6980	0.7172	0.2360	5,600.2026
Maximum	**57.0801**	**87.7311**	**35.7970**	**0.3252**	**29.0431**	**1.7230**	**30.7661**	**12.6185**	**1.6019**	**14.2204**	**0.0000**	**35,257.0354**	**35,257.0354**	**2.9420**	**4.9913**	**36,817.9871**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	3.7932	87.7311	35.7970	0.3252	29.0431	1.7230	30.7661	12.6185	1.6019	14.2204	0.0000	35,257.0354	35,257.0354	2.9420	4.9913	36,817.9871
2024	57.0801	16.3812	22.5039	0.0554	2.2830	0.6384	2.9213	0.6159	0.6005	1.2164	0.0000	5,512.6980	5,512.6980	0.7172	0.2360	5,600.2026
Maximum	**57.0801**	**87.7311**	**35.7970**	**0.3252**	**29.0431**	**1.7230**	**30.7661**	**12.6185**	**1.6019**	**14.2204**	**0.0000**	**35,257.0354**	**35,257.0354**	**2.9420**	**4.9913**	**36,817.9871**

Temecula Hospital SEIR Construction - Phase 3 - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	7.0000e-003	6.9000e-004	0.0761	1.0000e-005		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004		0.1635	0.1635	4.3000e-004		0.1741
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	11.8086	11.9919	114.3210	0.2601	3.8858	0.1838	4.0695	1.5455	0.1709	1.7164		26,520.7850	26,520.7850	1.6428	1.1017	26,890.1637
Total	**11.8156**	**11.9926**	**114.3971**	**0.2601**	**3.8858**	**0.1840**	**4.0698**	**1.5455**	**0.1712**	**1.7166**		**26,520.9485**	**26,520.9485**	**1.6432**	**1.1017**	**26,890.3378**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	7.0000e-003	6.9000e-004	0.0761	1.0000e-005		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004		0.1635	0.1635	4.3000e-004		0.1741
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	11.8086	11.9919	114.3210	0.2601	3.8858	0.1838	4.0695	1.5455	0.1709	1.7164		26,520.7850	26,520.7850	1.6428	1.1017	26,890.1637
Total	**11.8156**	**11.9926**	**114.3971**	**0.2601**	**3.8858**	**0.1840**	**4.0698**	**1.5455**	**0.1712**	**1.7166**		**26,520.9485**	**26,520.9485**	**1.6432**	**1.1017**	**26,890.3378**

Temecula Hospital SEIR Construction - Phase 3 - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2023	1/13/2023	5	10	
2	Grading	Grading	1/14/2023	2/24/2023	5	30	
3	Building Construction	Building Construction	2/25/2023	4/19/2024	5	300	
4	Paving	Paving	4/20/2024	5/17/2024	5	20	
5	Architectural Coating	Architectural Coating	5/18/2024	6/14/2024	5	20	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 90

Acres of Paving: 4.57

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 358,500; Non-Residential Outdoor: 119,500; Striped Parking Area: 12,192 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	4,995.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	1,498.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	163.00	72.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	33.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					20.1048	0.0000	20.1048	10.1703	0.0000	10.1703			0.0000			0.0000
Off-Road	2.6595	27.5242	18.2443	0.0381		1.2660	1.2660		1.1647	1.1647		3,687.3081	3,687.3081	1.1926		3,717.1219
Total	**2.6595**	**27.5242**	**18.2443**	**0.0381**	**20.1048**	**1.2660**	**21.3709**	**10.1703**	**1.1647**	**11.3350**		**3,687.3081**	**3,687.3081**	**1.1926**		**3,717.1219**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.0763	60.1684	16.9212	0.2854	8.7371	0.4559	9.1929	2.3949	0.4361	2.8310		31,391.6006	31,391.6006	1.7451	4.9872	32,921.4183
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0575	0.0386	0.6314	1.7600e-003	0.2012	1.1300e-003	0.2023	0.0534	1.0400e-003	0.0544		178.1267	178.1267	4.3200e-003	4.0700e-003	179.4470
Total	**1.1337**	**60.2069**	**17.5526**	**0.2872**	**8.9383**	**0.4570**	**9.3953**	**2.4483**	**0.4372**	**2.8854**		**31,569.7273**	**31,569.7273**	**1.7495**	**4.9913**	**33,100.8653**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					20.1048	0.0000	20.1048	10.1703	0.0000	10.1703			0.0000			0.0000
Off-Road	2.6595	27.5242	18.2443	0.0381		1.2660	1.2660		1.1647	1.1647	0.0000	3,687.3081	3,687.3081	1.1926		3,717.1219
Total	**2.6595**	**27.5242**	**18.2443**	**0.0381**	**20.1048**	**1.2660**	**21.3709**	**10.1703**	**1.1647**	**11.3350**	**0.0000**	**3,687.3081**	**3,687.3081**	**1.1926**		**3,717.1219**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.0763	60.1684	16.9212	0.2854	8.7371	0.4559	9.1929	2.3949	0.4361	2.8310		31,391.6006	31,391.6006	1.7451	4.9872	32,921.4183
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0575	0.0386	0.6314	1.7600e-003	0.2012	1.1300e-003	0.2023	0.0534	1.0400e-003	0.0544		178.1267	178.1267	4.3200e-003	4.0700e-003	179.4470
Total	**1.1337**	**60.2069**	**17.5526**	**0.2872**	**8.9383**	**0.4570**	**9.3953**	**2.4483**	**0.4372**	**2.8854**		**31,569.7273**	**31,569.7273**	**1.7495**	**4.9913**	**33,100.8653**

Temecula Hospital SEIR Construction - Phase 3 - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					9.2484	0.0000	9.2484	3.6605	0.0000	3.6605			0.0000			0.0000
Off-Road	3.3217	34.5156	28.0512	0.0621		1.4245	1.4245		1.3105	1.3105		6,011.4777	6,011.4777	1.9442		6,060.0836
Total	**3.3217**	**34.5156**	**28.0512**	**0.0621**	**9.2484**	**1.4245**	**10.6729**	**3.6605**	**1.3105**	**4.9711**		**6,011.4777**	**6,011.4777**	**1.9442**		**6,060.0836**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1076	6.0148	1.6916	0.0285	0.8734	0.0456	0.9190	0.2394	0.0436	0.2830		3,138.1126	3,138.1126	0.1745	0.4986	3,291.0434
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0639	0.0429	0.7016	1.9600e-003	0.2236	1.2600e-003	0.2248	0.0593	1.1600e-003	0.0604		197.9185	197.9185	4.8000e-003	4.5200e-003	199.3856
Total	**0.1714**	**6.0577**	**2.3931**	**0.0305**	**1.0970**	**0.0468**	**1.1438**	**0.2987**	**0.0448**	**0.3435**		**3,336.0311**	**3,336.0311**	**0.1793**	**0.5031**	**3,490.4289**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					9.2484	0.0000	9.2484	3.6605	0.0000	3.6605			0.0000			0.0000
Off-Road	3.3217	34.5156	28.0512	0.0621		1.4245	1.4245		1.3105	1.3105	0.0000	6,011.4777	6,011.4777	1.9442		6,060.0836
Total	**3.3217**	**34.5156**	**28.0512**	**0.0621**	**9.2484**	**1.4245**	**10.6729**	**3.6605**	**1.3105**	**4.9711**	**0.0000**	**6,011.4777**	**6,011.4777**	**1.9442**		**6,060.0836**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1076	6.0148	1.6916	0.0285	0.8734	0.0456	0.9190	0.2394	0.0436	0.2830		3,138.1126	3,138.1126	0.1745	0.4986	3,291.0434
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0639	0.0429	0.7016	1.9600e-003	0.2236	1.2600e-003	0.2248	0.0593	1.1600e-003	0.0604		197.9185	197.9185	4.8000e-003	4.5200e-003	199.3856
Total	**0.1714**	**6.0577**	**2.3931**	**0.0305**	**1.0970**	**0.0468**	**1.1438**	**0.2987**	**0.0448**	**0.3435**		**3,336.0311**	**3,336.0311**	**0.1793**	**0.5031**	**3,490.4289**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0796	2.6136	1.0290	0.0131	0.4610	0.0152	0.4763	0.1327	0.0146	0.1473		1,411.4226	1,411.4226	0.0474	0.2043	1,473.4990
Worker	0.5204	0.3492	5.7178	0.0160	1.8220	0.0102	1.8322	0.4832	9.4200e-003	0.4926		1,613.0359	1,613.0359	0.0391	0.0368	1,624.9923
Total	**0.6000**	**2.9628**	**6.7468**	**0.0291**	**2.2830**	**0.0255**	**2.3084**	**0.6159**	**0.0240**	**0.6399**		**3,024.4585**	**3,024.4585**	**0.0865**	**0.2412**	**3,098.4914**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0796	2.6136	1.0290	0.0131	0.4610	0.0152	0.4763	0.1327	0.0146	0.1473		1,411.4226	1,411.4226	0.0474	0.2043	1,473.4990
Worker	0.5204	0.3492	5.7178	0.0160	1.8220	0.0102	1.8322	0.4832	9.4200e-003	0.4926		1,613.0359	1,613.0359	0.0391	0.0368	1,624.9923
Total	**0.6000**	**2.9628**	**6.7468**	**0.0291**	**2.2830**	**0.0255**	**2.3084**	**0.6159**	**0.0240**	**0.6399**		**3,024.4585**	**3,024.4585**	**0.0865**	**0.2412**	**3,098.4914**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**		**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0777	2.6255	1.0120	0.0129	0.4610	0.0153	0.4763	0.1327	0.0146	0.1473		1,391.1180	1,391.1180	0.0474	0.2017	1,452.4070
Worker	0.4857	0.3120	5.3250	0.0155	1.8220	9.7800e-003	1.8317	0.4832	9.0100e-003	0.4922		1,565.8810	1,565.8810	0.0354	0.0343	1,576.9880
Total	**0.5634**	**2.9375**	**6.3370**	**0.0284**	**2.2830**	**0.0250**	**2.3080**	**0.6159**	**0.0236**	**0.6395**		**2,956.9991**	**2,956.9991**	**0.0829**	**0.2360**	**3,029.3950**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**	**0.0000**	**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0777	2.6255	1.0120	0.0129	0.4610	0.0153	0.4763	0.1327	0.0146	0.1473		1,391.1180	1,391.1180	0.0474	0.2017	1,452.4070
Worker	0.4857	0.3120	5.3250	0.0155	1.8220	9.7800e-003	1.8317	0.4832	9.0100e-003	0.4922		1,565.8810	1,565.8810	0.0354	0.0343	1,576.9880
Total	**0.5634**	**2.9375**	**6.3370**	**0.0284**	**2.2830**	**0.0250**	**2.3080**	**0.6159**	**0.0236**	**0.6395**		**2,956.9991**	**2,956.9991**	**0.0829**	**0.2360**	**3,029.3950**

Temecula Hospital SEIR Construction - Phase 3 - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.5987					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.5868**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**		**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0447	0.0287	0.4900	1.4300e-003	0.1677	9.0000e-004	0.1686	0.0445	8.3000e-004	0.0453		144.0995	144.0995	3.2600e-003	3.1600e-003	145.1216
Total	**0.0447**	**0.0287**	**0.4900**	**1.4300e-003**	**0.1677**	**9.0000e-004**	**0.1686**	**0.0445**	**8.3000e-004**	**0.0453**		**144.0995**	**144.0995**	**3.2600e-003**	**3.1600e-003**	**145.1216**

Temecula Hospital SEIR Construction - Phase 3 - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310	0.0000	2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.5987					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.5868**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**	**0.0000**	**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0447	0.0287	0.4900	1.4300e-003	0.1677	9.0000e-004	0.1686	0.0445	8.3000e-004	0.0453		144.0995	144.0995	3.2600e-003	3.1600e-003	145.1216
Total	**0.0447**	**0.0287**	**0.4900**	**1.4300e-003**	**0.1677**	**9.0000e-004**	**0.1686**	**0.0445**	**8.3000e-004**	**0.0453**		**144.0995**	**144.0995**	**3.2600e-003**	**3.1600e-003**	**145.1216**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	56.8010					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**56.9818**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0983	0.0632	1.0781	3.1400e-003	0.3689	1.9800e-003	0.3708	0.0978	1.8200e-003	0.0997		317.0189	317.0189	7.1700e-003	6.9400e-003	319.2675
Total	**0.0983**	**0.0632**	**1.0781**	**3.1400e-003**	**0.3689**	**1.9800e-003**	**0.3708**	**0.0978**	**1.8200e-003**	**0.0997**		**317.0189**	**317.0189**	**7.1700e-003**	**6.9400e-003**	**319.2675**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	56.8010					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**56.9818**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0983	0.0632	1.0781	3.1400e-003	0.3689	1.9800e-003	0.3708	0.0978	1.8200e-003	0.0997		317.0189	317.0189	7.1700e-003	6.9400e-003	319.2675
Total	**0.0983**	**0.0632**	**1.0781**	**3.1400e-003**	**0.3689**	**1.9800e-003**	**0.3708**	**0.0978**	**1.8200e-003**	**0.0997**		**317.0189**	**317.0189**	**7.1700e-003**	**6.9400e-003**	**319.2675**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	11.8086	11.9919	114.3210	0.2601	3.8858	0.1838	4.0695	1.5455	0.1709	1.7164		26,520.7850	26,520.7850	1.6428	1.1017	26,890.1637
Unmitigated	11.8086	11.9919	114.3210	0.2601	3.8858	0.1838	4.0695	1.5455	0.1709	1.7164		26,520.7850	26,520.7850	1.6428	1.1017	26,890.1637

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Hospital	1,554.40	1,119.40	981.65	5,468,036	5,468,036
Medical Office Building	2,784.00	685.60	113.60	5,454,218	5,454,218
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	24.36	24.36	24.36	104,400	104,400
Total	4,362.76	1,829.36	1,119.61	11,026,654	11,026,654

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Hospital	16.60	8.40	6.90	64.90	16.10	19.00	73	25	2
Medical Office Building	16.60	8.40	6.90	29.60	51.40	19.00	60	30	10
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Unrefrigerated Warehouse-No	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Hospital	0.541709	0.062136	0.185590	0.128486	0.023783	0.006533	0.012157	0.009216	0.000814	0.000497	0.024669	0.000753	0.003657
Medical Office Building	0.541709	0.062136	0.185590	0.128486	0.023783	0.006533	0.012157	0.009216	0.000814	0.000497	0.024669	0.000753	0.003657
Parking Lot	0.541709	0.062136	0.185590	0.128486	0.023783	0.006533	0.012157	0.009216	0.000814	0.000497	0.024669	0.000753	0.003657
Unrefrigerated Warehouse-No Rail	0.541709	0.062136	0.185590	0.128486	0.023783	0.006533	0.012157	0.009216	0.000814	0.000497	0.024669	0.000753	0.003657

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Hospital	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Hospital	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	7.0000e-003	6.9000e-004	0.0761	1.0000e-005		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004		0.1635	0.1635	4.3000e-004		0.1741
Unmitigated	7.0000e-003	6.9000e-004	0.0761	1.0000e-005		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004		0.1635	0.1635	4.3000e-004		0.1741

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	7.0000e-003	6.9000e-004	0.0761	1.0000e-005		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004		0.1635	0.1635	4.3000e-004		0.1741
Total	**7.0000e-003**	**6.9000e-004**	**0.0761**	**1.0000e-005**		**2.7000e-004**	**2.7000e-004**		**2.7000e-004**	**2.7000e-004**		**0.1635**	**0.1635**	**4.3000e-004**		**0.1741**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	7.0000e-003	6.9000e-004	0.0761	1.0000e-005		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004		0.1635	0.1635	4.3000e-004		0.1741
Total	**7.0000e-003**	**6.9000e-004**	**0.0761**	**1.0000e-005**		**2.7000e-004**	**2.7000e-004**		**2.7000e-004**	**2.7000e-004**		**0.1635**	**0.1635**	**4.3000e-004**		**0.1741**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Temecula Hospital SEIR Construction - Phase 3 [Mitigated Run] - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Temecula Hospital SEIR Construction - Phase 3 [Mitigated Run]

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Hospital	145.00	1000sqft	3.33	145,000.00	0
Medical Office Building	80.00	1000sqft	1.84	80,000.00	0
Unrefrigerated Warehouse-No Rail	14.00	1000sqft	0.32	14,000.00	0
Parking Lot	508.00	Space	4.57	203,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2025
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	263	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Construction Run only

Land Use - Phase 3 Construction
Existing Hospital Expansion - 20,000 sqft
2# Hospital Tower - 125,000 sqft
Medical Office Building - 80,000 sqft
Utility Plant - 14,000 sqft
Parking Spaces - 508

Construction Phase - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment -

Temecula Hospital SEIR Construction - Phase 3 [Mitigated Run] - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Trips and VMT - CalEEMod Defaults Used

On-road Fugitive Dust - CalEEMod Defaults Used

Demolition - No Demolition

Grading - Total Import/Export and Grading quantities were scaled according to the sqft of each phase.
Import Quantity - 30,360 CY
Export Quantity - 9,240 CY
Grading Quantity - 11,880 CY

Architectural Coating - Archetectural coating mititgation measure applied

Vehicle Trips - No Operations

Vehicle Emission Factors - No Operations

Vehicle Emission Factors - No Operations

Vehicle Emission Factors - No Operations

Road Dust - No Operations

Woodstoves - No Operations

Consumer Products - No Operations

Area Coating - No Operations

Landscape Equipment - No Operations

Energy Use - No Operations

Water And Wastewater - No Operations

Solid Waste - No Operations

Land Use Change - No Operations

Sequestration - No Operations

Construction Off-road Equipment Mitigation - Tier 4 mitigation measure applied

Area Mitigation -

Operational Off-Road Equipment - No Operations

Fleet Mix - No Operations

Stationary Sources - Emergency Generators and Fire Pumps - No Operations

Temecula Hospital SEIR Construction - Phase 3 [Mitigated Run] - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Stationary Sources - Process Boilers - No Operations
Stationary Sources - User Defined - No Operations

Stationary Sources - Emergency Generators and Fire Pumps EF - No Operations

Stationary Sources - Process Boilers EF - No Operations

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	10.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	10.00
tblArchitecturalCoating	EF_Parking	100.00	10.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	100	0
tblAreaCoating	Area_EF_Nonresidential_Interior	100	0
tblAreaCoating	Area_EF_Parking	100	0
tblAreaCoating	Area_EF_Residential_Exterior	50	0
tblAreaCoating	Area_EF_Residential_Interior	50	0
tblAreaCoating	Area_Nonresidential_Exterior	119500	0
tblAreaCoating	Area_Nonresidential_Interior	358500	0
tblAreaCoating	Area_Parking	12192	0
tblAreaCoating	ReapplicationRatePercent	10	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConsumerProducts	ROG_EF	1.98E-05	0
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	0
tblConsumerProducts	ROG_EF_PesticidesFertilizers	5.152E-08	0
tblEnergyUse	LightingElect	4.52	0.00
tblEnergyUse	LightingElect	3.66	0.00
tblEnergyUse	LightingElect	0.35	0.00
tblEnergyUse	LightingElect	1.17	0.00
tblEnergyUse	NT24E	5.56	0.00
tblEnergyUse	NT24E	2.79	0.00
tblEnergyUse	NT24E	0.82	0.00
tblEnergyUse	NT24NG	6.03	0.00
tblEnergyUse	NT24NG	0.03	0.00
tblEnergyUse	T24E	7.45	0.00
tblEnergyUse	T24E	2.74	0.00
tblEnergyUse	T24E	0.33	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblEnergyUse	T24NG	68.80	0.00
tblEnergyUse	T24NG	3.43	0.00
tblEnergyUse	T24NG	1.98	0.00
tblGrading	MaterialExported	0.00	9,240.00
tblGrading	MaterialImported	0.00	11,880.00
tblGrading	MaterialImported	0.00	30,360.00
tblLandscapeEquipment	NumberSummerDays	250	0
tblProjectCharacteristics	CH4IntensityFactor	0.033	0
tblProjectCharacteristics	CO2IntensityFactor	390.98	263
tblProjectCharacteristics	N2OIntensityFactor	0.004	0
tblRoadDust	MaterialMoistureContent	0.5	0
tblRoadDust	MaterialSiltContent	4.3	0
tblRoadDust	MeanVehicleSpeed	40	0
tblRoadDust	MobileAverageVehicleWeight	2.4	0
tblRoadDust	RoadPercentPave	100	0
tblRoadDust	RoadSiltLoading	0.1	0
tblSolidWaste	SolidWasteGenerationRate	1,566.00	0.00
tblSolidWaste	SolidWasteGenerationRate	864.00	0.00
tblSolidWaste	SolidWasteGenerationRate	13.16	0.00
tblWater	IndoorWaterUseRate	18,194,677.95	0.00
tblWater	IndoorWaterUseRate	10,038,443.00	0.00
tblWater	IndoorWaterUseRate	3,237,500.00	0.00
tblWater	OutdoorWaterUseRate	3,465,652.94	0.00
tblWater	OutdoorWaterUseRate	1,912,084.38	0.00

2.0 Emissions Summary

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	3.7835	87.1890	35.6445	0.3226	28.9644	1.7189	30.6833	12.5969	1.5980	14.1949	0.0000	34,974.2282	34,974.2282	2.9263	4.9464	36,521.3978
2024	11.6393	16.3812	22.5039	0.0554	2.2830	0.6384	2.9213	0.6159	0.6005	1.2164	0.0000	5,512.6980	5,512.6980	0.7172	0.2360	5,600.2026
Maximum	**11.6393**	**87.1890**	**35.6445**	**0.3226**	**28.9644**	**1.7189**	**30.6833**	**12.5969**	**1.5980**	**14.1949**	**0.0000**	**34,974.2282**	**34,974.2282**	**2.9263**	**4.9464**	**36,521.3978**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	1.5896	61.6824	38.2692	0.3226	16.7004	0.5150	17.2154	6.3931	0.4953	6.8884	0.0000	34,974.2282	34,974.2282	2.9263	4.9464	36,521.3978
2024	11.4882	5.1722	23.7973	0.0554	2.2830	0.0658	2.3488	0.6159	0.0644	0.6803	0.0000	5,512.6980	5,512.6980	0.7172	0.2360	5,600.2026
Maximum	**11.4882**	**61.6824**	**38.2692**	**0.3226**	**16.7004**	**0.5150**	**17.2154**	**6.3931**	**0.4953**	**6.8884**	**0.0000**	**34,974.2282**	**34,974.2282**	**2.9263**	**4.9464**	**36,521.3978**

Temecula Hospital SEIR Construction - Phase 3 [Mitigated Run] - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	15.20	35.45	-6.74	0.00	39.25	75.36	41.78	46.95	74.54	50.89	0.00	0.00	0.00	0.00	0.00	0.00

Temecula Hospital SEIR Construction - Phase 3 [Mitigated Run] - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	7.0000e-003	6.9000e-004	0.0761	1.0000e-005		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004		0.1635	0.1635	4.3000e-004		0.1741
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	11.8086	11.9919	114.3210	0.2601	3.8858	0.1838	4.0695	1.5455	0.1709	1.7164		26,520.7850	26,520.7850	1.6428	1.1017	26,890.1637
Total	**11.8156**	**11.9926**	**114.3971**	**0.2601**	**3.8858**	**0.1840**	**4.0698**	**1.5455**	**0.1712**	**1.7166**		**26,520.9485**	**26,520.9485**	**1.6432**	**1.1017**	**26,890.3378**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	7.0000e-003	6.9000e-004	0.0761	1.0000e-005		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004		0.1635	0.1635	4.3000e-004		0.1741
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	11.8086	11.9919	114.3210	0.2601	3.8858	0.1838	4.0695	1.5455	0.1709	1.7164		26,520.7850	26,520.7850	1.6428	1.1017	26,890.1637
Total	**11.8156**	**11.9926**	**114.3971**	**0.2601**	**3.8858**	**0.1840**	**4.0698**	**1.5455**	**0.1712**	**1.7166**		**26,520.9485**	**26,520.9485**	**1.6432**	**1.1017**	**26,890.3378**

Temecula Hospital SEIR Construction - Phase 3 [Mitigated Run] - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2023	1/13/2023	5	10	
2	Grading	Grading	1/14/2023	2/24/2023	5	30	
3	Building Construction	Building Construction	2/25/2023	4/19/2024	5	300	
4	Paving	Paving	4/20/2024	5/17/2024	5	20	
5	Architectural Coating	Architectural Coating	5/18/2024	6/14/2024	5	20	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 90

Acres of Paving: 4.57

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 358,500; Non-Residential Outdoor: 119,500; Striped Parking Area: 12,192 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	4,950.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	1,485.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	163.00	72.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	33.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					20.1048	0.0000	20.1048	10.1703	0.0000	10.1703			0.0000			0.0000
Off-Road	2.6595	27.5242	18.2443	0.0381		1.2660	1.2660		1.1647	1.1647		3,687.3081	3,687.3081	1.1926		3,717.1219
Total	**2.6595**	**27.5242**	**18.2443**	**0.0381**	**20.1048**	**1.2660**	**21.3709**	**10.1703**	**1.1647**	**11.3350**		**3,687.3081**	**3,687.3081**	**1.1926**		**3,717.1219**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.0666	59.6263	16.7688	0.2828	8.6584	0.4518	9.1101	2.3733	0.4322	2.8055		31,108.7934	31,108.7934	1.7294	4.9423	32,624.8289
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0575	0.0386	0.6314	1.7600e-003	0.2012	1.1300e-003	0.2023	0.0534	1.0400e-003	0.0544		178.1267	178.1267	4.3200e-003	4.0700e-003	179.4470
Total	**1.1240**	**59.6649**	**17.4002**	**0.2846**	**8.8596**	**0.4529**	**9.3124**	**2.4267**	**0.4333**	**2.8599**		**31,286.9201**	**31,286.9201**	**1.7337**	**4.9464**	**32,804.2759**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.8409	0.0000	7.8409	3.9664	0.0000	3.9664			0.0000			0.0000
Off-Road	0.4656	2.0175	20.8690	0.0381		0.0621	0.0621		0.0621	0.0621	0.0000	3,687.3081	3,687.3081	1.1926		3,717.1219
Total	**0.4656**	**2.0175**	**20.8690**	**0.0381**	**7.8409**	**0.0621**	**7.9030**	**3.9664**	**0.0621**	**4.0285**	**0.0000**	**3,687.3081**	**3,687.3081**	**1.1926**		**3,717.1219**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.0666	59.6263	16.7688	0.2828	8.6584	0.4518	9.1101	2.3733	0.4322	2.8055		31,108.7934	31,108.7934	1.7294	4.9423	32,624.8289
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0575	0.0386	0.6314	1.7600e-003	0.2012	1.1300e-003	0.2023	0.0534	1.0400e-003	0.0544		178.1267	178.1267	4.3200e-003	4.0700e-003	179.4470
Total	**1.1240**	**59.6649**	**17.4002**	**0.2846**	**8.8596**	**0.4529**	**9.3124**	**2.4267**	**0.4333**	**2.8599**		**31,286.9201**	**31,286.9201**	**1.7337**	**4.9464**	**32,804.2759**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					9.2484	0.0000	9.2484	3.6605	0.0000	3.6605			0.0000			0.0000
Off-Road	3.3217	34.5156	28.0512	0.0621		1.4245	1.4245		1.3105	1.3105		6,011.4777	6,011.4777	1.9442		6,060.0836
Total	**3.3217**	**34.5156**	**28.0512**	**0.0621**	**9.2484**	**1.4245**	**10.6729**	**3.6605**	**1.3105**	**4.9711**		**6,011.4777**	**6,011.4777**	**1.9442**		**6,060.0836**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1067	5.9626	1.6769	0.0283	0.8658	0.0452	0.9110	0.2373	0.0432	0.2806		3,110.8793	3,110.8793	0.1729	0.4942	3,262.4829
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0639	0.0429	0.7016	1.9600e-003	0.2236	1.2600e-003	0.2248	0.0593	1.1600e-003	0.0604		197.9185	197.9185	4.8000e-003	4.5200e-003	199.3856
Total	**0.1705**	**6.0055**	**2.3785**	**0.0302**	**1.0894**	**0.0464**	**1.1358**	**0.2966**	**0.0444**	**0.3410**		**3,308.7979**	**3,308.7979**	**0.1777**	**0.4988**	**3,461.8685**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.6069	0.0000	3.6069	1.4276	0.0000	1.4276			0.0000			0.0000
Off-Road	0.7616	3.3000	32.9991	0.0621		0.1015	0.1015		0.1015	0.1015	0.0000	6,011.4777	6,011.4777	1.9442		6,060.0836
Total	**0.7616**	**3.3000**	**32.9991**	**0.0621**	**3.6069**	**0.1015**	**3.7084**	**1.4276**	**0.1015**	**1.5292**	**0.0000**	**6,011.4777**	**6,011.4777**	**1.9442**		**6,060.0836**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1067	5.9626	1.6769	0.0283	0.8658	0.0452	0.9110	0.2373	0.0432	0.2806		3,110.8793	3,110.8793	0.1729	0.4942	3,262.4829
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0639	0.0429	0.7016	1.9600e-003	0.2236	1.2600e-003	0.2248	0.0593	1.1600e-003	0.0604		197.9185	197.9185	4.8000e-003	4.5200e-003	199.3856
Total	**0.1705**	**6.0055**	**2.3785**	**0.0302**	**1.0894**	**0.0464**	**1.1358**	**0.2966**	**0.0444**	**0.3410**		**3,308.7979**	**3,308.7979**	**0.1777**	**0.4988**	**3,461.8685**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0796	2.6136	1.0290	0.0131	0.4610	0.0152	0.4763	0.1327	0.0146	0.1473		1,411.4226	1,411.4226	0.0474	0.2043	1,473.4990
Worker	0.5204	0.3492	5.7178	0.0160	1.8220	0.0102	1.8322	0.4832	9.4200e-003	0.4926		1,613.0359	1,613.0359	0.0391	0.0368	1,624.9923
Total	**0.6000**	**2.9628**	**6.7468**	**0.0291**	**2.2830**	**0.0255**	**2.3084**	**0.6159**	**0.0240**	**0.6399**		**3,024.4585**	**3,024.4585**	**0.0865**	**0.2412**	**3,098.4914**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3278	2.2347	17.4603	0.0269		0.0408	0.0408		0.0408	0.0408	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**0.3278**	**2.2347**	**17.4603**	**0.0269**		**0.0408**	**0.0408**		**0.0408**	**0.0408**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0796	2.6136	1.0290	0.0131	0.4610	0.0152	0.4763	0.1327	0.0146	0.1473		1,411.4226	1,411.4226	0.0474	0.2043	1,473.4990
Worker	0.5204	0.3492	5.7178	0.0160	1.8220	0.0102	1.8322	0.4832	9.4200e-003	0.4926		1,613.0359	1,613.0359	0.0391	0.0368	1,624.9923
Total	**0.6000**	**2.9628**	**6.7468**	**0.0291**	**2.2830**	**0.0255**	**2.3084**	**0.6159**	**0.0240**	**0.6399**		**3,024.4585**	**3,024.4585**	**0.0865**	**0.2412**	**3,098.4914**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**		**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0777	2.6255	1.0120	0.0129	0.4610	0.0153	0.4763	0.1327	0.0146	0.1473		1,391.1180	1,391.1180	0.0474	0.2017	1,452.4070
Worker	0.4857	0.3120	5.3250	0.0155	1.8220	9.7800e-003	1.8317	0.4832	9.0100e-003	0.4922		1,565.8810	1,565.8810	0.0354	0.0343	1,576.9880
Total	**0.5634**	**2.9375**	**6.3370**	**0.0284**	**2.2830**	**0.0250**	**2.3080**	**0.6159**	**0.0236**	**0.6395**		**2,956.9991**	**2,956.9991**	**0.0829**	**0.2360**	**3,029.3950**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3278	2.2347	17.4603	0.0270		0.0408	0.0408		0.0408	0.0408	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**0.3278**	**2.2347**	**17.4603**	**0.0270**		**0.0408**	**0.0408**		**0.0408**	**0.0408**	**0.0000**	**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0777	2.6255	1.0120	0.0129	0.4610	0.0153	0.4763	0.1327	0.0146	0.1473		1,391.1180	1,391.1180	0.0474	0.2017	1,452.4070
Worker	0.4857	0.3120	5.3250	0.0155	1.8220	9.7800e-003	1.8317	0.4832	9.0100e-003	0.4922		1,565.8810	1,565.8810	0.0354	0.0343	1,576.9880
Total	**0.5634**	**2.9375**	**6.3370**	**0.0284**	**2.2830**	**0.0250**	**2.3080**	**0.6159**	**0.0236**	**0.6395**		**2,956.9991**	**2,956.9991**	**0.0829**	**0.2360**	**3,029.3950**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.5987					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.5868**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**		**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0447	0.0287	0.4900	1.4300e-003	0.1677	9.0000e-004	0.1686	0.0445	8.3000e-004	0.0453		144.0995	144.0995	3.2600e-003	3.1600e-003	145.1216
Total	**0.0447**	**0.0287**	**0.4900**	**1.4300e-003**	**0.1677**	**9.0000e-004**	**0.1686**	**0.0445**	**8.3000e-004**	**0.0453**		**144.0995**	**144.0995**	**3.2600e-003**	**3.1600e-003**	**145.1216**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2805	1.2154	17.2957	0.0228		0.0374	0.0374		0.0374	0.0374	0.0000	2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.5987					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8791**	**1.2154**	**17.2957**	**0.0228**		**0.0374**	**0.0374**		**0.0374**	**0.0374**	**0.0000**	**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0447	0.0287	0.4900	1.4300e-003	0.1677	9.0000e-004	0.1686	0.0445	8.3000e-004	0.0453		144.0995	144.0995	3.2600e-003	3.1600e-003	145.1216
Total	**0.0447**	**0.0287**	**0.4900**	**1.4300e-003**	**0.1677**	**9.0000e-004**	**0.1686**	**0.0445**	**8.3000e-004**	**0.0453**		**144.0995**	**144.0995**	**3.2600e-003**	**3.1600e-003**	**145.1216**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	11.3602					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**11.5410**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0983	0.0632	1.0781	3.1400e-003	0.3689	1.9800e-003	0.3708	0.0978	1.8200e-003	0.0997		317.0189	317.0189	7.1700e-003	6.9400e-003	319.2675
Total	**0.0983**	**0.0632**	**1.0781**	**3.1400e-003**	**0.3689**	**1.9800e-003**	**0.3708**	**0.0978**	**1.8200e-003**	**0.0997**		**317.0189**	**317.0189**	**7.1700e-003**	**6.9400e-003**	**319.2675**

3.6 Architectural Coating - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	11.3602					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**11.3899**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0983	0.0632	1.0781	3.1400e-003	0.3689	1.9800e-003	0.3708	0.0978	1.8200e-003	0.0997		317.0189	317.0189	7.1700e-003	6.9400e-003	319.2675
Total	**0.0983**	**0.0632**	**1.0781**	**3.1400e-003**	**0.3689**	**1.9800e-003**	**0.3708**	**0.0978**	**1.8200e-003**	**0.0997**		**317.0189**	**317.0189**	**7.1700e-003**	**6.9400e-003**	**319.2675**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	11.8086	11.9919	114.3210	0.2601	3.8858	0.1838	4.0695	1.5455	0.1709	1.7164		26,520.7850	26,520.7850	1.6428	1.1017	26,890.1637
Unmitigated	11.8086	11.9919	114.3210	0.2601	3.8858	0.1838	4.0695	1.5455	0.1709	1.7164		26,520.7850	26,520.7850	1.6428	1.1017	26,890.1637

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Hospital	1,554.40	1,119.40	981.65	5,468,036	5,468,036
Medical Office Building	2,784.00	685.60	113.60	5,454,218	5,454,218
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	24.36	24.36	24.36	104,400	104,400
Total	4,362.76	1,829.36	1,119.61	11,026,654	11,026,654

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Hospital	16.60	8.40	6.90	64.90	16.10	19.00	73	25	2
Medical Office Building	16.60	8.40	6.90	29.60	51.40	19.00	60	30	10
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Unrefrigerated Warehouse-No	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Hospital	0.541709	0.062136	0.185590	0.128486	0.023783	0.006533	0.012157	0.009216	0.000814	0.000497	0.024669	0.000753	0.003657
Medical Office Building	0.541709	0.062136	0.185590	0.128486	0.023783	0.006533	0.012157	0.009216	0.000814	0.000497	0.024669	0.000753	0.003657
Parking Lot	0.541709	0.062136	0.185590	0.128486	0.023783	0.006533	0.012157	0.009216	0.000814	0.000497	0.024669	0.000753	0.003657
Unrefrigerated Warehouse-No Rail	0.541709	0.062136	0.185590	0.128486	0.023783	0.006533	0.012157	0.009216	0.000814	0.000497	0.024669	0.000753	0.003657

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Temecula Hospital SEIR Construction - Phase 3 [Mitigated Run] - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Hospital	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Hospital	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	7.0000e-003	6.9000e-004	0.0761	1.0000e-005		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004		0.1635	0.1635	4.3000e-004		0.1741
Unmitigated	7.0000e-003	6.9000e-004	0.0761	1.0000e-005		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004		0.1635	0.1635	4.3000e-004		0.1741

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	7.0000e-003	6.9000e-004	0.0761	1.0000e-005		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004		0.1635	0.1635	4.3000e-004		0.1741
Total	**7.0000e-003**	**6.9000e-004**	**0.0761**	**1.0000e-005**		**2.7000e-004**	**2.7000e-004**		**2.7000e-004**	**2.7000e-004**		**0.1635**	**0.1635**	**4.3000e-004**		**0.1741**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	7.0000e-003	6.9000e-004	0.0761	1.0000e-005		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004		0.1635	0.1635	4.3000e-004		0.1741
Total	**7.0000e-003**	**6.9000e-004**	**0.0761**	**1.0000e-005**		**2.7000e-004**	**2.7000e-004**		**2.7000e-004**	**2.7000e-004**		**0.1635**	**0.1635**	**4.3000e-004**		**0.1741**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Temecula Hospital SEIR Construction - Phase 4 - South Coast AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Temecula Hospital SEIR Construction - Phase 4

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Hospital	125.00	1000sqft	2.87	125,000.00	0
Medical Office Building	80.00	1000sqft	1.84	80,000.00	0
Enclosed Parking with Elevator	680.00	Space	6.12	272,000.00	0
Parking Lot	303.00	Space	2.73	121,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2025
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	263	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Construction Run only

Land Use - Phase 4 Construction
3# Hospital Tower - 125,000 sqft
2# Medical Office Building - 80,000 sqft
Parking Spaces - 303
Parking Structure - 608

Construction Phase - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment -

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Trips and VMT - CalEEMod Defaults Used

On-road Fugitive Dust - CalEEMod Defaults Used

Demolition - No Demolition

Grading - Total Import/Export and Grading quantities were scaled according to the sqft of each phase.
Import Quantity - 41,070 CY
Export Quantity - 12,500 CY
Grading Quantity - 16,071 CY

Architectural Coating - SCAQMD's Rule 1113

Vehicle Trips - No Operations

Vehicle Emission Factors - No Operations

Vehicle Emission Factors - No Operations

Vehicle Emission Factors - No Operations

Road Dust - No Operations

Consumer Products - No Operations

Area Coating - No Operations

Landscape Equipment - No Operations

Energy Use - No Operations

Water And Wastewater - No Operations

Solid Waste - No Operations

Land Use Change - No Operations

Sequestration - No Operations

Area Mitigation -

Operational Off-Road Equipment - No Operations

Fleet Mix - No Operations

Stationary Sources - Emergency Generators and Fire Pumps - No Operations

Stationary Sources - Process Boilers - No Operations

Stationary Sources - User Defined - No Operations

Temecula Hospital SEIR Construction - Phase 4 - South Coast AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Stationary Sources - Emergency Generators and Fire Pumps EF - No Operations
Stationary Sources - Process Boilers EF - No Operations

Woodstoves - No Operations

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblArchitecturalCoating	EF_Parking	100.00	50.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	100	0
tblAreaCoating	Area_EF_Nonresidential_Interior	100	0
tblAreaCoating	Area_EF_Parking	100	0
tblAreaCoating	Area_EF_Residential_Exterior	50	0
tblAreaCoating	Area_EF_Residential_Interior	50	0
tblAreaCoating	Area_Nonresidential_Exterior	102500	0
tblAreaCoating	Area_Nonresidential_Interior	307500	0
tblAreaCoating	Area_Parking	23592	0
tblAreaCoating	ReapplicationRatePercent	10	0
tblConsumerProducts	ROG_EF	1.98E-05	0
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	0
tblConsumerProducts	ROG_EF_PesticidesFertilizers	5.152E-08	0
tblEnergyUse	LightingElect	1.75	0.00
tblEnergyUse	LightingElect	4.52	0.00
tblEnergyUse	LightingElect	3.66	0.00
tblEnergyUse	LightingElect	0.35	0.00
tblEnergyUse	NT24E	0.19	0.00
tblEnergyUse	NT24E	5.56	0.00
tblEnergyUse	NT24E	2.79	0.00
tblEnergyUse	NT24NG	6.03	0.00
tblEnergyUse	T24E	3.50	0.00
tblEnergyUse	T24E	7.45	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblEnergyUse	T24E	2.74	0.00
tblEnergyUse	T24NG	68.80	0.00
tblEnergyUse	T24NG	3.43	0.00
tblGrading	MaterialExported	0.00	12,500.00
tblGrading	MaterialImported	0.00	16,071.00
tblGrading	MaterialImported	0.00	41,070.00
tblLandscapeEquipment	NumberSummerDays	250	0
tblProjectCharacteristics	CH4IntensityFactor	0.033	0
tblProjectCharacteristics	CO2IntensityFactor	390.98	263
tblProjectCharacteristics	N2OIntensityFactor	0.004	0
tblRoadDust	MaterialMoistureContent	0.5	0
tblRoadDust	MaterialSiltContent	4.3	0
tblRoadDust	MeanVehicleSpeed	40	0
tblRoadDust	MobileAverageVehicleWeight	2.4	0
tblRoadDust	RoadPercentPave	100	0
tblRoadDust	RoadSiltLoading	0.1	0
tblSolidWaste	SolidWasteGenerationRate	1,350.00	0.00
tblSolidWaste	SolidWasteGenerationRate	864.00	0.00
tblVehicleTrips	ST_TR	7.72	0.00
tblVehicleTrips	ST_TR	8.57	0.00
tblVehicleTrips	SU_TR	6.77	0.00
tblVehicleTrips	SU_TR	1.42	0.00
tblVehicleTrips	WD_TR	10.72	0.00
tblVehicleTrips	WD_TR	34.80	0.00
tblWater	IndoorWaterUseRate	15,685,067.19	0.00
tblWater	IndoorWaterUseRate	10,038,443.00	0.00
tblWater	OutdoorWaterUseRate	2,987,631.85	0.00
tblWater	OutdoorWaterUseRate	1,912,084.38	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2029	0.1547	1.8203	1.6832	6.1400e-003	0.4629	0.0517	0.5146	0.1664	0.0482	0.2146	0.0000	575.1761	575.1761	0.0749	0.0473	591.1484
2030	0.7184	1.3175	2.5457	7.0800e-003	0.3361	0.0221	0.3583	0.0908	0.0220	0.1127	0.0000	636.3619	636.3619	0.0214	0.0271	644.9792
Maximum	**0.7184**	**1.8203**	**2.5457**	**7.0800e-003**	**0.4629**	**0.0517**	**0.5146**	**0.1664**	**0.0482**	**0.2146**	**0.0000**	**636.3619**	**636.3619**	**0.0749**	**0.0473**	**644.9792**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2029	0.1547	1.8203	1.6832	6.1400e-003	0.4629	0.0517	0.5146	0.1664	0.0482	0.2146	0.0000	575.1759	575.1759	0.0749	0.0473	591.1481
2030	0.7184	1.3174	2.5457	7.0800e-003	0.3361	0.0221	0.3583	0.0908	0.0220	0.1127	0.0000	636.3615	636.3615	0.0214	0.0271	644.9789
Maximum	**0.7184**	**1.8203**	**2.5457**	**7.0800e-003**	**0.4629**	**0.0517**	**0.5146**	**0.1664**	**0.0482**	**0.2146**	**0.0000**	**636.3615**	**636.3615**	**0.0749**	**0.0473**	**644.9789**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**7-1-2029**	**9-30-2029**	1.3144	1.3144
2	**10-1-2029**	**12-31-2029**	0.6052	0.6052
3	**1-1-2030**	**3-31-2030**	0.4420	0.4420
4	**4-1-2030**	**6-30-2030**	0.4395	0.4395
5	**7-1-2030**	**9-30-2030**	0.4443	0.4443
		Highest	1.3144	1.3144

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	7/1/2029	7/13/2029	5	10	
2	Grading	Grading	7/14/2029	8/24/2029	5	30	
3	Building Construction	Building Construction	8/25/2029	10/18/2030	5	300	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4	Paving	Paving	10/19/2030	11/15/2030	5	20	
5	Architectural Coating	Architectural Coating	11/16/2030	12/13/2030	5	20	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 90

Acres of Paving: 8.85

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 307,500; Non-Residential Outdoor: 102,500; Striped Parking Area: 23,592 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	6,696.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	2,009.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	231.00	98.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	46.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2029

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1013	0.0000	0.1013	0.0510	0.0000	0.0510	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0124	0.1262	0.0896	1.9000e-004		5.4300e-003	5.4300e-003		5.0000e-003	5.0000e-003	0.0000	16.7335	16.7335	5.4100e-003	0.0000	16.8688
Total	**0.0124**	**0.1262**	**0.0896**	**1.9000e-004**	**0.1013**	**5.4300e-003**	**0.1067**	**0.0510**	**5.0000e-003**	**0.0560**	**0.0000**	**16.7335**	**16.7335**	**5.4100e-003**	**0.0000**	**16.8688**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2029

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.6500e-003	0.4058	0.1209	1.7000e-003	0.0576	2.9800e-003	0.0606	0.0158	2.8500e-003	0.0187	0.0000	170.3279	170.3279	0.0109	0.0271	178.6780
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-004	1.2000e-004	2.0600e-003	1.0000e-005	9.9000e-004	0.0000	9.9000e-004	2.6000e-004	0.0000	2.7000e-004	0.0000	0.6496	0.6496	1.0000e-005	1.0000e-005	0.6542
Total	**6.8500e-003**	**0.4059**	**0.1230**	**1.7100e-003**	**0.0586**	**2.9800e-003**	**0.0616**	**0.0161**	**2.8500e-003**	**0.0189**	**0.0000**	**170.9775**	**170.9775**	**0.0109**	**0.0271**	**179.3322**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1013	0.0000	0.1013	0.0510	0.0000	0.0510	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0124	0.1262	0.0896	1.9000e-004		5.4300e-003	5.4300e-003		5.0000e-003	5.0000e-003	0.0000	16.7335	16.7335	5.4100e-003	0.0000	16.8688
Total	**0.0124**	**0.1262**	**0.0896**	**1.9000e-004**	**0.1013**	**5.4300e-003**	**0.1067**	**0.0510**	**5.0000e-003**	**0.0560**	**0.0000**	**16.7335**	**16.7335**	**5.4100e-003**	**0.0000**	**16.8688**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2029

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.6500e-003	0.4058	0.1209	1.7000e-003	0.0576	2.9800e-003	0.0606	0.0158	2.8500e-003	0.0187	0.0000	170.3279	170.3279	0.0109	0.0271	178.6780
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-004	1.2000e-004	2.0600e-003	1.0000e-005	9.9000e-004	0.0000	9.9000e-004	2.6000e-004	0.0000	2.7000e-004	0.0000	0.6496	0.6496	1.0000e-005	1.0000e-005	0.6542
Total	**6.8500e-003**	**0.4059**	**0.1230**	**1.7100e-003**	**0.0586**	**2.9800e-003**	**0.0616**	**0.0161**	**2.8500e-003**	**0.0189**	**0.0000**	**170.9775**	**170.9775**	**0.0109**	**0.0271**	**179.3322**

3.3 Grading - 2029

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1390	0.0000	0.1390	0.0549	0.0000	0.0549	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0435	0.4191	0.3950	9.3000e-004		0.0170	0.0170		0.0156	0.0156	0.0000	81.7593	81.7593	0.0264	0.0000	82.4204
Total	**0.0435**	**0.4191**	**0.3950**	**9.3000e-004**	**0.1390**	**0.0170**	**0.1559**	**0.0549**	**0.0156**	**0.0706**	**0.0000**	**81.7593**	**81.7593**	**0.0264**	**0.0000**	**82.4204**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2029

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-003	0.1218	0.0363	5.1000e-004	0.0173	8.9000e-004	0.0182	4.7500e-003	8.6000e-004	5.6000e-003	0.0000	51.1035	51.1035	3.2600e-003	8.1300e-003	53.6087
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.5000e-004	4.1000e-004	6.8600e-003	2.0000e-005	3.2900e-003	1.0000e-005	3.3000e-003	8.7000e-004	1.0000e-005	8.9000e-004	0.0000	2.1655	2.1655	4.0000e-005	5.0000e-005	2.1805
Total	**2.6500e-003**	**0.1222**	**0.0431**	**5.3000e-004**	**0.0206**	**9.0000e-004**	**0.0215**	**5.6200e-003**	**8.7000e-004**	**6.4900e-003**	**0.0000**	**53.2689**	**53.2689**	**3.3000e-003**	**8.1800e-003**	**55.7893**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1390	0.0000	0.1390	0.0549	0.0000	0.0549	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0435	0.4191	0.3950	9.3000e-004		0.0170	0.0170		0.0156	0.0156	0.0000	81.7592	81.7592	0.0264	0.0000	82.4203
Total	**0.0435**	**0.4191**	**0.3950**	**9.3000e-004**	**0.1390**	**0.0170**	**0.1559**	**0.0549**	**0.0156**	**0.0706**	**0.0000**	**81.7592**	**81.7592**	**0.0264**	**0.0000**	**82.4203**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2029

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-003	0.1218	0.0363	5.1000e-004	0.0173	8.9000e-004	0.0182	4.7500e-003	8.6000e-004	5.6000e-003	0.0000	51.1035	51.1035	3.2600e-003	8.1300e-003	53.6087
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.5000e-004	4.1000e-004	6.8600e-003	2.0000e-005	3.2900e-003	1.0000e-005	3.3000e-003	8.7000e-004	1.0000e-005	8.9000e-004	0.0000	2.1655	2.1655	4.0000e-005	5.0000e-005	2.1805
Total	**2.6500e-003**	**0.1222**	**0.0431**	**5.3000e-004**	**0.0206**	**9.0000e-004**	**0.0215**	**5.6200e-003**	**8.7000e-004**	**6.4900e-003**	**0.0000**	**53.2689**	**53.2689**	**3.3000e-003**	**8.1800e-003**	**55.7893**

3.4 Building Construction - 2029

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0622	0.5674	0.7319	1.2300e-003		0.0240	0.0240		0.0226	0.0226	0.0000	105.5234	105.5234	0.0248	0.0000	106.1435
Total	**0.0622**	**0.5674**	**0.7319**	**1.2300e-003**		**0.0240**	**0.0240**		**0.0226**	**0.0226**	**0.0000**	**105.5234**	**105.5234**	**0.0248**	**0.0000**	**106.1435**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2029

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.2900e-003	0.1653	0.0605	7.2000e-004	0.0281	9.3000e-004	0.0291	8.1100e-003	8.9000e-004	9.0100e-003	0.0000	71.0471	71.0471	2.6800e-003	0.0104	74.2000
Worker	0.0228	0.0143	0.2402	8.3000e-004	0.1153	4.6000e-004	0.1158	0.0306	4.3000e-004	0.0311	0.0000	75.8665	75.8665	1.3400e-003	1.6600e-003	76.3942
Total	**0.0271**	**0.1795**	**0.3007**	**1.5500e-003**	**0.1434**	**1.3900e-003**	**0.1448**	**0.0387**	**1.3200e-003**	**0.0401**	**0.0000**	**146.9136**	**146.9136**	**4.0200e-003**	**0.0120**	**150.5943**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0622	0.5674	0.7319	1.2300e-003		0.0240	0.0240		0.0226	0.0226	0.0000	105.5232	105.5232	0.0248	0.0000	106.1434
Total	**0.0622**	**0.5674**	**0.7319**	**1.2300e-003**		**0.0240**	**0.0240**		**0.0226**	**0.0226**	**0.0000**	**105.5232**	**105.5232**	**0.0248**	**0.0000**	**106.1434**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2029

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.2900e-003	0.1653	0.0605	7.2000e-004	0.0281	9.3000e-004	0.0291	8.1100e-003	8.9000e-004	9.0100e-003	0.0000	71.0471	71.0471	2.6800e-003	0.0104	74.2000
Worker	0.0228	0.0143	0.2402	8.3000e-004	0.1153	4.6000e-004	0.1158	0.0306	4.3000e-004	0.0311	0.0000	75.8665	75.8665	1.3400e-003	1.6600e-003	76.3942
Total	**0.0271**	**0.1795**	**0.3007**	**1.5500e-003**	**0.1434**	**1.3900e-003**	**0.1448**	**0.0387**	**1.3200e-003**	**0.0401**	**0.0000**	**146.9136**	**146.9136**	**4.0200e-003**	**0.0120**	**150.5943**

3.4 Building Construction - 2030

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1368	0.8292	1.6884	3.2300e-003		0.0155	0.0155		0.0155	0.0155	0.0000	274.6898	274.6898	0.0110	0.0000	274.9653
Total	**0.1368**	**0.8292**	**1.6884**	**3.2300e-003**		**0.0155**	**0.0155**		**0.0155**	**0.0155**	**0.0000**	**274.6898**	**274.6898**	**0.0110**	**0.0000**	**274.9653**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2030

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.7400e-003	0.3772	0.1382	1.6300e-003	0.0646	2.1300e-003	0.0667	0.0186	2.0400e-003	0.0207	0.0000	160.1701	160.1701	6.1700e-003	0.0234	167.2856
Worker	0.0494	0.0305	0.5293	1.8600e-003	0.2648	9.9000e-004	0.2658	0.0703	9.2000e-004	0.0713	0.0000	170.5398	170.5398	2.8500e-003	3.6700e-003	171.7058
Total	**0.0592**	**0.4077**	**0.6675**	**3.4900e-003**	**0.3294**	**3.1200e-003**	**0.3326**	**0.0890**	**2.9600e-003**	**0.0919**	**0.0000**	**330.7099**	**330.7099**	**9.0200e-003**	**0.0270**	**338.9914**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1368	0.8292	1.6884	3.2300e-003		0.0155	0.0155		0.0155	0.0155	0.0000	274.6894	274.6894	0.0110	0.0000	274.9649
Total	**0.1368**	**0.8292**	**1.6884**	**3.2300e-003**		**0.0155**	**0.0155**		**0.0155**	**0.0155**	**0.0000**	**274.6894**	**274.6894**	**0.0110**	**0.0000**	**274.9649**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2030

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.7400e-003	0.3772	0.1382	1.6300e-003	0.0646	2.1300e-003	0.0667	0.0186	2.0400e-003	0.0207	0.0000	160.1701	160.1701	6.1700e-003	0.0234	167.2856
Worker	0.0494	0.0305	0.5293	1.8600e-003	0.2648	9.9000e-004	0.2658	0.0703	9.2000e-004	0.0713	0.0000	170.5398	170.5398	2.8500e-003	3.6700e-003	171.7058
Total	**0.0592**	**0.4077**	**0.6675**	**3.4900e-003**	**0.3294**	**3.1200e-003**	**0.3326**	**0.0890**	**2.9600e-003**	**0.0919**	**0.0000**	**330.7099**	**330.7099**	**9.0200e-003**	**0.0270**	**338.9914**

3.5 Paving - 2030

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0139	0.0712	0.1585	2.8000e-004		3.3100e-003	3.3100e-003		3.3100e-003	3.3100e-003	0.0000	24.0995	24.0995	1.1300e-003	0.0000	24.1278
Paving	3.5800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0174**	**0.0712**	**0.1585**	**2.8000e-004**		**3.3100e-003**	**3.3100e-003**		**3.3100e-003**	**3.3100e-003**	**0.0000**	**24.0995**	**24.0995**	**1.1300e-003**	**0.0000**	**24.1278**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2030

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.1000e-004	1.9000e-004	3.2900e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6500e-003	4.4000e-004	1.0000e-005	4.4000e-004	0.0000	1.0597	1.0597	2.0000e-005	2.0000e-005	1.0670
Total	**3.1000e-004**	**1.9000e-004**	**3.2900e-003**	**1.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6500e-003**	**4.4000e-004**	**1.0000e-005**	**4.4000e-004**	**0.0000**	**1.0597**	**1.0597**	**2.0000e-005**	**2.0000e-005**	**1.0670**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0139	0.0712	0.1585	2.8000e-004		3.3100e-003	3.3100e-003		3.3100e-003	3.3100e-003	0.0000	24.0995	24.0995	1.1300e-003	0.0000	24.1277
Paving	3.5800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0174**	**0.0712**	**0.1585**	**2.8000e-004**		**3.3100e-003**	**3.3100e-003**		**3.3100e-003**	**3.3100e-003**	**0.0000**	**24.0995**	**24.0995**	**1.1300e-003**	**0.0000**	**24.1277**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2030

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.1000e-004	1.9000e-004	3.2900e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6500e-003	4.4000e-004	1.0000e-005	4.4000e-004	0.0000	1.0597	1.0597	2.0000e-005	2.0000e-005	1.0670
Total	**3.1000e-004**	**1.9000e-004**	**3.2900e-003**	**1.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6500e-003**	**4.4000e-004**	**1.0000e-005**	**4.4000e-004**	**0.0000**	**1.0597**	**1.0597**	**2.0000e-005**	**2.0000e-005**	**1.0670**

3.6 Architectural Coating - 2030

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.5024					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3100e-003	8.5600e-003	0.0180	3.0000e-005		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004	0.0000	2.5533	2.5533	1.0000e-004	0.0000	2.5558
Total	**0.5037**	**8.5600e-003**	**0.0180**	**3.0000e-005**		**2.0000e-004**	**2.0000e-004**		**2.0000e-004**	**2.0000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.0000e-004**	**0.0000**	**2.5558**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2030

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.4000e-004	5.8000e-004	0.0101	4.0000e-005	5.0500e-003	2.0000e-005	5.0700e-003	1.3400e-003	2.0000e-005	1.3600e-003	0.0000	3.2498	3.2498	5.0000e-005	7.0000e-005	3.2720
Total	**9.4000e-004**	**5.8000e-004**	**0.0101**	**4.0000e-005**	**5.0500e-003**	**2.0000e-005**	**5.0700e-003**	**1.3400e-003**	**2.0000e-005**	**1.3600e-003**	**0.0000**	**3.2498**	**3.2498**	**5.0000e-005**	**7.0000e-005**	**3.2720**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.5024					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3100e-003	8.5600e-003	0.0180	3.0000e-005		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004	0.0000	2.5533	2.5533	1.0000e-004	0.0000	2.5558
Total	**0.5037**	**8.5600e-003**	**0.0180**	**3.0000e-005**		**2.0000e-004**	**2.0000e-004**		**2.0000e-004**	**2.0000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.0000e-004**	**0.0000**	**2.5558**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2030

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.4000e-004	5.8000e-004	0.0101	4.0000e-005	5.0500e-003	2.0000e-005	5.0700e-003	1.3400e-003	2.0000e-005	1.3600e-003	0.0000	3.2498	3.2498	5.0000e-005	7.0000e-005	3.2720
Total	**9.4000e-004**	**5.8000e-004**	**0.0101**	**4.0000e-005**	**5.0500e-003**	**2.0000e-005**	**5.0700e-003**	**1.3400e-003**	**2.0000e-005**	**1.3600e-003**	**0.0000**	**3.2498**	**3.2498**	**5.0000e-005**	**7.0000e-005**	**3.2720**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Enclosed Parking with Elevator	0.00	0.00	0.00		
Hospital	0.00	0.00	0.00		
Medical Office Building	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Enclosed Parking with Elevator	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Hospital	16.60	8.40	6.90	64.90	16.10	19.00	73	25	2
Medical Office Building	16.60	8.40	6.90	29.60	51.40	19.00	60	30	10
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Enclosed Parking with Elevator	0.541709	0.062136	0.185590	0.128486	0.023783	0.006533	0.012157	0.009216	0.000814	0.000497	0.024669	0.000753	0.003657
Hospital	0.541709	0.062136	0.185590	0.128486	0.023783	0.006533	0.012157	0.009216	0.000814	0.000497	0.024669	0.000753	0.003657
Medical Office Building	0.541709	0.062136	0.185590	0.128486	0.023783	0.006533	0.012157	0.009216	0.000814	0.000497	0.024669	0.000753	0.003657
Parking Lot	0.541709	0.062136	0.185590	0.128486	0.023783	0.006533	0.012157	0.009216	0.000814	0.000497	0.024669	0.000753	0.003657

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hospital	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hospital	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Hospital	0	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Hospital	0	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Hospital	0 / 0	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Hospital	0 / 0	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Hospital	0	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Hospital	0	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Equipment Type	Number

11.0 Vegetation

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Hospital	125.00	1000sqft	2.87	125,000.00	0
Medical Office Building	80.00	1000sqft	1.84	80,000.00	0
Enclosed Parking with Elevator	680.00	Space	6.12	272,000.00	0
Parking Lot	303.00	Space	2.73	121,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2025
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	263	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Construction Run only

Land Use - Phase 4 Construction
3# Hospital Tower - 125,000 sqft
2# Medical Office Building - 80,000 sqft
Parking Spaces - 303
Parking Structure - 608

Construction Phase - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment -

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Trips and VMT - CalEEMod Defaults Used

On-road Fugitive Dust - CalEEMod Defaults Used

Demolition - No Demolition

Grading - Total Import/Export and Grading quantities were scaled according to the sqft of each phase.
Import Quantity - 41,070 CY
Export Quantity - 12,500 CY
Grading Quantity - 16,071 CY

Architectural Coating - Archetectural coating mititgation measure applied

Vehicle Trips - No Operations

Vehicle Emission Factors - No Operations

Vehicle Emission Factors - No Operations

Vehicle Emission Factors - No Operations

Road Dust - No Operations

Woodstoves - No Operations

Consumer Products - No Operations

Area Coating - No Operations

Landscape Equipment - No Operations

Energy Use - No Operations

Water And Wastewater - No Operations

Solid Waste - No Operations

Land Use Change - No Operations

Sequestration - No Operations

Construction Off-road Equipment Mitigation - Tier 4 mitigation measure applied

Area Mitigation -

Operational Off-Road Equipment - No Operations

Fleet Mix - No Operations

Stationary Sources - Emergency Generators and Fire Pumps - No Operations

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Stationary Sources - Process Boilers - No Operations
Stationary Sources - User Defined - No Operations

Stationary Sources - Emergency Generators and Fire Pumps EF - No Operations

Stationary Sources - Process Boilers EF - No Operations

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	10.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	10.00
tblArchitecturalCoating	EF_Parking	100.00	10.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	100	0
tblAreaCoating	Area_EF_Nonresidential_Interior	100	0
tblAreaCoating	Area_EF_Parking	100	0
tblAreaCoating	Area_EF_Residential_Exterior	50	0
tblAreaCoating	Area_EF_Residential_Interior	50	0
tblAreaCoating	Area_Nonresidential_Exterior	102500	0
tblAreaCoating	Area_Nonresidential_Interior	307500	0
tblAreaCoating	Area_Parking	23592	0
tblAreaCoating	ReapplicationRatePercent	10	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConsumerProducts	ROG_EF	1.98E-05	0
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	0
tblConsumerProducts	ROG_EF_PesticidesFertilizers	5.152E-08	0
tblEnergyUse	LightingElect	1.75	0.00
tblEnergyUse	LightingElect	4.52	0.00
tblEnergyUse	LightingElect	3.66	0.00
tblEnergyUse	LightingElect	0.35	0.00
tblEnergyUse	NT24E	0.19	0.00
tblEnergyUse	NT24E	5.56	0.00
tblEnergyUse	NT24E	2.79	0.00
tblEnergyUse	NT24NG	6.03	0.00
tblEnergyUse	T24E	3.50	0.00
tblEnergyUse	T24E	7.45	0.00
tblEnergyUse	T24E	2.74	0.00
tblEnergyUse	T24NG	68.80	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblEnergyUse	T24NG	3.43	0.00
tblGrading	MaterialExported	0.00	12,500.00
tblGrading	MaterialImported	0.00	16,071.00
tblGrading	MaterialImported	0.00	41,070.00
tblLandscapeEquipment	NumberSummerDays	250	0
tblProjectCharacteristics	CH4IntensityFactor	0.033	0
tblProjectCharacteristics	CO2IntensityFactor	390.98	263
tblProjectCharacteristics	N2OIntensityFactor	0.004	0
tblRoadDust	MaterialMoistureContent	0.5	0
tblRoadDust	MaterialSiltContent	4.3	0
tblRoadDust	MeanVehicleSpeed	40	0
tblRoadDust	MobileAverageVehicleWeight	2.4	0
tblRoadDust	RoadPercentPave	100	0
tblRoadDust	RoadSiltLoading	0.1	0
tblSolidWaste	SolidWasteGenerationRate	1,350.00	0.00
tblSolidWaste	SolidWasteGenerationRate	864.00	0.00
tblVehicleTrips	ST_TR	7.72	0.00
tblVehicleTrips	ST_TR	8.57	0.00
tblVehicleTrips	SU_TR	6.77	0.00
tblVehicleTrips	SU_TR	1.42	0.00
tblVehicleTrips	WD_TR	10.72	0.00
tblVehicleTrips	WD_TR	34.80	0.00
tblWater	IndoorWaterUseRate	15,685,067.19	0.00
tblWater	IndoorWaterUseRate	10,038,443.00	0.00
tblWater	OutdoorWaterUseRate	2,987,631.85	0.00
tblWater	OutdoorWaterUseRate	1,912,084.38	0.00

2.0 Emissions Summary

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2029	0.1547	1.8203	1.6832	6.1400e-003	0.4629	0.0517	0.5146	0.1664	0.0482	0.2146	0.0000	575.1761	575.1761	0.0749	0.0473	591.1484
2030	0.3164	1.3175	2.5457	7.0800e-003	0.3361	0.0221	0.3583	0.0908	0.0220	0.1127	0.0000	636.3619	636.3619	0.0214	0.0271	644.9792
Maximum	**0.3164**	**1.8203**	**2.5457**	**7.0800e-003**	**0.4629**	**0.0517**	**0.5146**	**0.1664**	**0.0482**	**0.2146**	**0.0000**	**636.3619**	**636.3619**	**0.0749**	**0.0473**	**644.9792**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2029	0.0653	0.8689	1.8606	6.1400e-003	0.3163	8.9800e-003	0.3253	0.1018	8.7300e-003	0.1105	0.0000	575.1759	575.1759	0.0749	0.0473	591.1481
2030	0.2018	0.6555	2.6967	7.0800e-003	0.3361	7.8300e-003	0.3439	0.0908	7.6500e-003	0.0984	0.0000	636.3615	636.3615	0.0214	0.0271	644.9789
Maximum	**0.2018**	**0.8689**	**2.6967**	**7.0800e-003**	**0.3361**	**8.9800e-003**	**0.3439**	**0.1018**	**8.7300e-003**	**0.1105**	**0.0000**	**636.3615**	**636.3615**	**0.0749**	**0.0473**	**644.9789**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**43.31**	**51.42**	**-7.77**	**0.00**	**18.34**	**77.23**	**23.33**	**25.13**	**76.67**	**36.18**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**7-1-2029**	**9-30-2029**	1.3144	0.6466
2	**10-1-2029**	**12-31-2029**	0.6052	0.2347
3	**1-1-2030**	**3-31-2030**	0.4420	0.2272
4	**4-1-2030**	**6-30-2030**	0.4395	0.2224
5	**7-1-2030**	**9-30-2030**	0.4443	0.2248
		Highest	1.3144	0.6466

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	7/1/2029	7/13/2029	5	10	
2	Grading	Grading	7/14/2029	8/24/2029	5	30	
3	Building Construction	Building Construction	8/25/2029	10/18/2030	5	300	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4	Paving	Paving	10/19/2030	11/15/2030	5	20	
5	Architectural Coating	Architectural Coating	11/16/2030	12/13/2030	5	20	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 90

Acres of Paving: 8.85

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 307,500; Non-Residential Outdoor: 102,500; Striped Parking Area: 23,592 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Temecula Hospital SEIR Construction - Phase 4 [Mitigated Run] - South Coast AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	6,696.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	2,009.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	231.00	98.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	46.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Site Preparation - 2029

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1013	0.0000	0.1013	0.0510	0.0000	0.0510	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0124	0.1262	0.0896	1.9000e-004		5.4300e-003	5.4300e-003		5.0000e-003	5.0000e-003	0.0000	16.7335	16.7335	5.4100e-003	0.0000	16.8688
Total	**0.0124**	**0.1262**	**0.0896**	**1.9000e-004**	**0.1013**	**5.4300e-003**	**0.1067**	**0.0510**	**5.0000e-003**	**0.0560**	**0.0000**	**16.7335**	**16.7335**	**5.4100e-003**	**0.0000**	**16.8688**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2029

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.6500e-003	0.4058	0.1209	1.7000e-003	0.0576	2.9800e-003	0.0606	0.0158	2.8500e-003	0.0187	0.0000	170.3279	170.3279	0.0109	0.0271	178.6780
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-004	1.2000e-004	2.0600e-003	1.0000e-005	9.9000e-004	0.0000	9.9000e-004	2.6000e-004	0.0000	2.7000e-004	0.0000	0.6496	0.6496	1.0000e-005	1.0000e-005	0.6542
Total	**6.8500e-003**	**0.4059**	**0.1230**	**1.7100e-003**	**0.0586**	**2.9800e-003**	**0.0616**	**0.0161**	**2.8500e-003**	**0.0189**	**0.0000**	**170.9775**	**170.9775**	**0.0109**	**0.0271**	**179.3322**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0395	0.0000	0.0395	0.0199	0.0000	0.0199	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.3300e-003	0.0101	0.1043	1.9000e-004		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	16.7335	16.7335	5.4100e-003	0.0000	16.8688
Total	**2.3300e-003**	**0.0101**	**0.1043**	**1.9000e-004**	**0.0395**	**3.1000e-004**	**0.0398**	**0.0199**	**3.1000e-004**	**0.0202**	**0.0000**	**16.7335**	**16.7335**	**5.4100e-003**	**0.0000**	**16.8688**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2029

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.6500e-003	0.4058	0.1209	1.7000e-003	0.0576	2.9800e-003	0.0606	0.0158	2.8500e-003	0.0187	0.0000	170.3279	170.3279	0.0109	0.0271	178.6780
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-004	1.2000e-004	2.0600e-003	1.0000e-005	9.9000e-004	0.0000	9.9000e-004	2.6000e-004	0.0000	2.7000e-004	0.0000	0.6496	0.6496	1.0000e-005	1.0000e-005	0.6542
Total	**6.8500e-003**	**0.4059**	**0.1230**	**1.7100e-003**	**0.0586**	**2.9800e-003**	**0.0616**	**0.0161**	**2.8500e-003**	**0.0189**	**0.0000**	**170.9775**	**170.9775**	**0.0109**	**0.0271**	**179.3322**

3.3 Grading - 2029

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1390	0.0000	0.1390	0.0549	0.0000	0.0549	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0435	0.4191	0.3950	9.3000e-004		0.0170	0.0170		0.0156	0.0156	0.0000	81.7593	81.7593	0.0264	0.0000	82.4204
Total	**0.0435**	**0.4191**	**0.3950**	**9.3000e-004**	**0.1390**	**0.0170**	**0.1559**	**0.0549**	**0.0156**	**0.0706**	**0.0000**	**81.7593**	**81.7593**	**0.0264**	**0.0000**	**82.4204**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2029

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-003	0.1218	0.0363	5.1000e-004	0.0173	8.9000e-004	0.0182	4.7500e-003	8.6000e-004	5.6000e-003	0.0000	51.1035	51.1035	3.2600e-003	8.1300e-003	53.6087
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.5000e-004	4.1000e-004	6.8600e-003	2.0000e-005	3.2900e-003	1.0000e-005	3.3000e-003	8.7000e-004	1.0000e-005	8.9000e-004	0.0000	2.1655	2.1655	4.0000e-005	5.0000e-005	2.1805
Total	**2.6500e-003**	**0.1222**	**0.0431**	**5.3000e-004**	**0.0206**	**9.0000e-004**	**0.0215**	**5.6200e-003**	**8.7000e-004**	**6.4900e-003**	**0.0000**	**53.2689**	**53.2689**	**3.3000e-003**	**8.1800e-003**	**55.7893**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0542	0.0000	0.0542	0.0214	0.0000	0.0214	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0114	0.0495	0.4950	9.3000e-004		1.5200e-003	1.5200e-003		1.5200e-003	1.5200e-003	0.0000	81.7592	81.7592	0.0264	0.0000	82.4203
Total	**0.0114**	**0.0495**	**0.4950**	**9.3000e-004**	**0.0542**	**1.5200e-003**	**0.0557**	**0.0214**	**1.5200e-003**	**0.0230**	**0.0000**	**81.7592**	**81.7592**	**0.0264**	**0.0000**	**82.4203**

3.3 Grading - 2029

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-003	0.1218	0.0363	5.1000e-004	0.0173	8.9000e-004	0.0182	4.7500e-003	8.6000e-004	5.6000e-003	0.0000	51.1035	51.1035	3.2600e-003	8.1300e-003	53.6087
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.5000e-004	4.1000e-004	6.8600e-003	2.0000e-005	3.2900e-003	1.0000e-005	3.3000e-003	8.7000e-004	1.0000e-005	8.9000e-004	0.0000	2.1655	2.1655	4.0000e-005	5.0000e-005	2.1805
Total	**2.6500e-003**	**0.1222**	**0.0431**	**5.3000e-004**	**0.0206**	**9.0000e-004**	**0.0215**	**5.6200e-003**	**8.7000e-004**	**6.4900e-003**	**0.0000**	**53.2689**	**53.2689**	**3.3000e-003**	**8.1800e-003**	**55.7893**

3.4 Building Construction - 2029

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0622	0.5674	0.7319	1.2300e-003		0.0240	0.0240		0.0226	0.0226	0.0000	105.5234	105.5234	0.0248	0.0000	106.1435
Total	**0.0622**	**0.5674**	**0.7319**	**1.2300e-003**		**0.0240**	**0.0240**		**0.0226**	**0.0226**	**0.0000**	**105.5234**	**105.5234**	**0.0248**	**0.0000**	**106.1435**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2029

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.2900e-003	0.1653	0.0605	7.2000e-004	0.0281	9.3000e-004	0.0291	8.1100e-003	8.9000e-004	9.0100e-003	0.0000	71.0471	71.0471	2.6800e-003	0.0104	74.2000
Worker	0.0228	0.0143	0.2402	8.3000e-004	0.1153	4.6000e-004	0.1158	0.0306	4.3000e-004	0.0311	0.0000	75.8665	75.8665	1.3400e-003	1.6600e-003	76.3942
Total	**0.0271**	**0.1795**	**0.3007**	**1.5500e-003**	**0.1434**	**1.3900e-003**	**0.1448**	**0.0387**	**1.3200e-003**	**0.0401**	**0.0000**	**146.9136**	**146.9136**	**4.0200e-003**	**0.0120**	**150.5943**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0149	0.1017	0.7944	1.2300e-003		1.8600e-003	1.8600e-003		1.8600e-003	1.8600e-003	0.0000	105.5232	105.5232	0.0248	0.0000	106.1434
Total	**0.0149**	**0.1017**	**0.7944**	**1.2300e-003**		**1.8600e-003**	**1.8600e-003**		**1.8600e-003**	**1.8600e-003**	**0.0000**	**105.5232**	**105.5232**	**0.0248**	**0.0000**	**106.1434**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2029

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.2900e-003	0.1653	0.0605	7.2000e-004	0.0281	9.3000e-004	0.0291	8.1100e-003	8.9000e-004	9.0100e-003	0.0000	71.0471	71.0471	2.6800e-003	0.0104	74.2000
Worker	0.0228	0.0143	0.2402	8.3000e-004	0.1153	4.6000e-004	0.1158	0.0306	4.3000e-004	0.0311	0.0000	75.8665	75.8665	1.3400e-003	1.6600e-003	76.3942
Total	**0.0271**	**0.1795**	**0.3007**	**1.5500e-003**	**0.1434**	**1.3900e-003**	**0.1448**	**0.0387**	**1.3200e-003**	**0.0401**	**0.0000**	**146.9136**	**146.9136**	**4.0200e-003**	**0.0120**	**150.5943**

3.4 Building Construction - 2030

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1368	0.8292	1.6884	3.2300e-003		0.0155	0.0155		0.0155	0.0155	0.0000	274.6898	274.6898	0.0110	0.0000	274.9653
Total	**0.1368**	**0.8292**	**1.6884**	**3.2300e-003**		**0.0155**	**0.0155**		**0.0155**	**0.0155**	**0.0000**	**274.6898**	**274.6898**	**0.0110**	**0.0000**	**274.9653**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2030

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.7400e-003	0.3772	0.1382	1.6300e-003	0.0646	2.1300e-003	0.0667	0.0186	2.0400e-003	0.0207	0.0000	160.1701	160.1701	6.1700e-003	0.0234	167.2856
Worker	0.0494	0.0305	0.5293	1.8600e-003	0.2648	9.9000e-004	0.2658	0.0703	9.2000e-004	0.0713	0.0000	170.5398	170.5398	2.8500e-003	3.6700e-003	171.7058
Total	**0.0592**	**0.4077**	**0.6675**	**3.4900e-003**	**0.3294**	**3.1200e-003**	**0.3326**	**0.0890**	**2.9600e-003**	**0.0919**	**0.0000**	**330.7099**	**330.7099**	**9.0200e-003**	**0.0270**	**338.9914**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0343	0.2335	1.8246	3.2300e-003		4.2600e-003	4.2600e-003		4.2600e-003	4.2600e-003	0.0000	274.6894	274.6894	0.0110	0.0000	274.9649
Total	**0.0343**	**0.2335**	**1.8246**	**3.2300e-003**		**4.2600e-003**	**4.2600e-003**		**4.2600e-003**	**4.2600e-003**	**0.0000**	**274.6894**	**274.6894**	**0.0110**	**0.0000**	**274.9649**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2030

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.7400e-003	0.3772	0.1382	1.6300e-003	0.0646	2.1300e-003	0.0667	0.0186	2.0400e-003	0.0207	0.0000	160.1701	160.1701	6.1700e-003	0.0234	167.2856
Worker	0.0494	0.0305	0.5293	1.8600e-003	0.2648	9.9000e-004	0.2658	0.0703	9.2000e-004	0.0713	0.0000	170.5398	170.5398	2.8500e-003	3.6700e-003	171.7058
Total	**0.0592**	**0.4077**	**0.6675**	**3.4900e-003**	**0.3294**	**3.1200e-003**	**0.3326**	**0.0890**	**2.9600e-003**	**0.0919**	**0.0000**	**330.7099**	**330.7099**	**9.0200e-003**	**0.0270**	**338.9914**

3.5 Paving - 2030

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0139	0.0712	0.1585	2.8000e-004		3.3100e-003	3.3100e-003		3.3100e-003	3.3100e-003	0.0000	24.0995	24.0995	1.1300e-003	0.0000	24.1278
Paving	3.5800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0174**	**0.0712**	**0.1585**	**2.8000e-004**		**3.3100e-003**	**3.3100e-003**		**3.3100e-003**	**3.3100e-003**	**0.0000**	**24.0995**	**24.0995**	**1.1300e-003**	**0.0000**	**24.1278**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2030

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.1000e-004	1.9000e-004	3.2900e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6500e-003	4.4000e-004	1.0000e-005	4.4000e-004	0.0000	1.0597	1.0597	2.0000e-005	2.0000e-005	1.0670
Total	**3.1000e-004**	**1.9000e-004**	**3.2900e-003**	**1.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6500e-003**	**4.4000e-004**	**1.0000e-005**	**4.4000e-004**	**0.0000**	**1.0597**	**1.0597**	**2.0000e-005**	**2.0000e-005**	**1.0670**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.8000e-003	0.0122	0.1730	2.8000e-004		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004	0.0000	24.0995	24.0995	1.1300e-003	0.0000	24.1277
Paving	3.5800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.3800e-003**	**0.0122**	**0.1730**	**2.8000e-004**		**3.7000e-004**	**3.7000e-004**		**3.7000e-004**	**3.7000e-004**	**0.0000**	**24.0995**	**24.0995**	**1.1300e-003**	**0.0000**	**24.1277**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2030

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.1000e-004	1.9000e-004	3.2900e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6500e-003	4.4000e-004	1.0000e-005	4.4000e-004	0.0000	1.0597	1.0597	2.0000e-005	2.0000e-005	1.0670
Total	**3.1000e-004**	**1.9000e-004**	**3.2900e-003**	**1.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6500e-003**	**4.4000e-004**	**1.0000e-005**	**4.4000e-004**	**0.0000**	**1.0597**	**1.0597**	**2.0000e-005**	**2.0000e-005**	**1.0670**

3.6 Architectural Coating - 2030

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3100e-003	8.5600e-003	0.0180	3.0000e-005		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004	0.0000	2.5533	2.5533	1.0000e-004	0.0000	2.5558
Total	**0.1018**	**8.5600e-003**	**0.0180**	**3.0000e-005**		**2.0000e-004**	**2.0000e-004**		**2.0000e-004**	**2.0000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.0000e-004**	**0.0000**	**2.5558**

Temecula Hospital SEIR Construction - Phase 4 [Mitigated Run] - South Coast AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2030

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.4000e-004	5.8000e-004	0.0101	4.0000e-005	5.0500e-003	2.0000e-005	5.0700e-003	1.3400e-003	2.0000e-005	1.3600e-003	0.0000	3.2498	3.2498	5.0000e-005	7.0000e-005	3.2720
Total	**9.4000e-004**	**5.8000e-004**	**0.0101**	**4.0000e-005**	**5.0500e-003**	**2.0000e-005**	**5.0700e-003**	**1.3400e-003**	**2.0000e-005**	**1.3600e-003**	**0.0000**	**3.2498**	**3.2498**	**5.0000e-005**	**7.0000e-005**	**3.2720**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.0000e-004	1.2900e-003	0.0183	3.0000e-005		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	2.5533	2.5533	1.0000e-004	0.0000	2.5558
Total	**0.1008**	**1.2900e-003**	**0.0183**	**3.0000e-005**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**2.5533**	**2.5533**	**1.0000e-004**	**0.0000**	**2.5558**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2030

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.4000e-004	5.8000e-004	0.0101	4.0000e-005	5.0500e-003	2.0000e-005	5.0700e-003	1.3400e-003	2.0000e-005	1.3600e-003	0.0000	3.2498	3.2498	5.0000e-005	7.0000e-005	3.2720
Total	**9.4000e-004**	**5.8000e-004**	**0.0101**	**4.0000e-005**	**5.0500e-003**	**2.0000e-005**	**5.0700e-003**	**1.3400e-003**	**2.0000e-005**	**1.3600e-003**	**0.0000**	**3.2498**	**3.2498**	**5.0000e-005**	**7.0000e-005**	**3.2720**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Temecula Hospital SEIR Construction - Phase 4 [Mitigated Run] - South Coast AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Enclosed Parking with Elevator	0.00	0.00	0.00		
Hospital	0.00	0.00	0.00		
Medical Office Building	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Enclosed Parking with Elevator	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Hospital	16.60	8.40	6.90	64.90	16.10	19.00	73	25	2
Medical Office Building	16.60	8.40	6.90	29.60	51.40	19.00	60	30	10
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Enclosed Parking with Elevator	0.541709	0.062136	0.185590	0.128486	0.023783	0.006533	0.012157	0.009216	0.000814	0.000497	0.024669	0.000753	0.003657
Hospital	0.541709	0.062136	0.185590	0.128486	0.023783	0.006533	0.012157	0.009216	0.000814	0.000497	0.024669	0.000753	0.003657
Medical Office Building	0.541709	0.062136	0.185590	0.128486	0.023783	0.006533	0.012157	0.009216	0.000814	0.000497	0.024669	0.000753	0.003657
Parking Lot	0.541709	0.062136	0.185590	0.128486	0.023783	0.006533	0.012157	0.009216	0.000814	0.000497	0.024669	0.000753	0.003657

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Temecula Hospital SEIR Construction - Phase 4 [Mitigated Run] - South Coast AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hospital	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Temecula Hospital SEIR Construction - Phase 4 [Mitigated Run] - South Coast AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hospital	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Hospital	0	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Hospital	0	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Hospital	0 / 0	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Hospital	0 / 0	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Temecula Hospital SEIR Construction - Phase 4 [Mitigated Run] - South Coast AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Hospital	0	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Hospital	0	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Equipment Type	Number

11.0 Vegetation

Temecula Hospital SEIR Construction - Phase 4 - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Temecula Hospital SEIR Construction - Phase 4

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Hospital	125.00	1000sqft	2.87	125,000.00	0
Medical Office Building	80.00	1000sqft	1.84	80,000.00	0
Enclosed Parking with Elevator	680.00	Space	6.12	272,000.00	0
Parking Lot	303.00	Space	2.73	121,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2025
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	263	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Construction Run only

Land Use - Phase 4 Construction
3# Hospital Tower - 125,000 sqft
2# Medical Office Building - 80,000 sqft
Parking Spaces - 303
Parking Structure - 608

Construction Phase - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment -

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Trips and VMT - CalEEMod Defaults Used

On-road Fugitive Dust - CalEEMod Defaults Used

Demolition - No Demolition

Grading - Total Import/Export and Grading quantities were scaled according to the sqft of each phase.
Import Quantity - 41,070 CY
Export Quantity - 12,500 CY
Grading Quantity - 16,071 CY

Architectural Coating - SCAQMD's Rule 1113

Vehicle Trips - No Operations

Vehicle Emission Factors - No Operations

Vehicle Emission Factors - No Operations

Vehicle Emission Factors - No Operations

Road Dust - No Operations

Consumer Products - No Operations

Area Coating - No Operations

Landscape Equipment - No Operations

Energy Use - No Operations

Water And Wastewater - No Operations

Solid Waste - No Operations

Land Use Change - No Operations

Sequestration - No Operations

Area Mitigation -

Operational Off-Road Equipment - No Operations

Fleet Mix - No Operations

Stationary Sources - Emergency Generators and Fire Pumps - No Operations

Stationary Sources - Process Boilers - No Operations

Stationary Sources - User Defined - No Operations

Temecula Hospital SEIR Construction - Phase 4 - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Stationary Sources - Emergency Generators and Fire Pumps EF - No Operations
Stationary Sources - Process Boilers EF - No Operations

Woodstoves - No Operations

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblArchitecturalCoating	EF_Parking	100.00	50.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	100	0
tblAreaCoating	Area_EF_Nonresidential_Interior	100	0
tblAreaCoating	Area_EF_Parking	100	0
tblAreaCoating	Area_EF_Residential_Exterior	50	0
tblAreaCoating	Area_EF_Residential_Interior	50	0
tblAreaCoating	Area_Nonresidential_Exterior	102500	0
tblAreaCoating	Area_Nonresidential_Interior	307500	0
tblAreaCoating	Area_Parking	23592	0
tblAreaCoating	ReapplicationRatePercent	10	0
tblConsumerProducts	ROG_EF	1.98E-05	0
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	0
tblConsumerProducts	ROG_EF_PesticidesFertilizers	5.152E-08	0
tblEnergyUse	LightingElect	1.75	0.00
tblEnergyUse	LightingElect	4.52	0.00
tblEnergyUse	LightingElect	3.66	0.00
tblEnergyUse	LightingElect	0.35	0.00
tblEnergyUse	NT24E	0.19	0.00
tblEnergyUse	NT24E	5.56	0.00
tblEnergyUse	NT24E	2.79	0.00
tblEnergyUse	NT24NG	6.03	0.00
tblEnergyUse	T24E	3.50	0.00
tblEnergyUse	T24E	7.45	0.00

Temecula Hospital SEIR Construction - Phase 4 - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblEnergyUse	T24E	2.74	0.00
tblEnergyUse	T24NG	68.80	0.00
tblEnergyUse	T24NG	3.43	0.00
tblGrading	MaterialExported	0.00	12,500.00
tblGrading	MaterialImported	0.00	16,071.00
tblGrading	MaterialImported	0.00	41,070.00
tblLandscapeEquipment	NumberSummerDays	250	0
tblProjectCharacteristics	CH4IntensityFactor	0.033	0
tblProjectCharacteristics	CO2IntensityFactor	390.98	263
tblProjectCharacteristics	N2OIntensityFactor	0.004	0
tblRoadDust	MaterialMoistureContent	0.5	0
tblRoadDust	MaterialSiltContent	4.3	0
tblRoadDust	MeanVehicleSpeed	40	0
tblRoadDust	MobileAverageVehicleWeight	2.4	0
tblRoadDust	RoadPercentPave	100	0
tblRoadDust	RoadSiltLoading	0.1	0
tblSolidWaste	SolidWasteGenerationRate	1,350.00	0.00
tblSolidWaste	SolidWasteGenerationRate	864.00	0.00
tblVehicleTrips	ST_TR	7.72	0.00
tblVehicleTrips	ST_TR	8.57	0.00
tblVehicleTrips	SU_TR	6.77	0.00
tblVehicleTrips	SU_TR	1.42	0.00
tblVehicleTrips	WD_TR	10.72	0.00
tblVehicleTrips	WD_TR	34.80	0.00
tblWater	IndoorWaterUseRate	15,685,067.19	0.00
tblWater	IndoorWaterUseRate	10,038,443.00	0.00
tblWater	OutdoorWaterUseRate	2,987,631.85	0.00
tblWater	OutdoorWaterUseRate	1,912,084.38	0.00

Temecula Hospital SEIR Construction - Phase 4 - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2029	3.8831	102.2592	42.4122	0.3786	32.1761	1.6830	33.8590	13.4579	1.5702	15.0281	0.0000	41,370.8949	41,370.8949	3.5932	5.9763	43,241.6493
2030	50.4691	11.6372	22.8935	0.0652	3.2096	0.3313	3.3876	0.8654	0.3312	1.0418	0.0000	6,466.5518	6,466.5518	0.2110	0.2821	6,555.8981
Maximum	**50.4691**	**102.2592**	**42.4122**	**0.3786**	**32.1761**	**1.6830**	**33.8590**	**13.4579**	**1.5702**	**15.0281**	**0.0000**	**41,370.8949**	**41,370.8949**	**3.5932**	**5.9763**	**43,241.6493**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2029	3.8831	102.2592	42.4122	0.3786	32.1761	1.6830	33.8590	13.4579	1.5702	15.0281	0.0000	41,370.8949	41,370.8949	3.5932	5.9763	43,241.6493
2030	50.4691	11.6372	22.8935	0.0652	3.2096	0.3313	3.3876	0.8654	0.3312	1.0418	0.0000	6,466.5518	6,466.5518	0.2110	0.2821	6,555.8981
Maximum	**50.4691**	**102.2592**	**42.4122**	**0.3786**	**32.1761**	**1.6830**	**33.8590**	**13.4579**	**1.5702**	**15.0281**	**0.0000**	**41,370.8949**	**41,370.8949**	**3.5932**	**5.9763**	**43,241.6493**

Temecula Hospital SEIR Construction - Phase 4 - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0111	1.1000e-003	0.1210	1.0000e-005		4.3000e-004	4.3000e-004		4.3000e-004	4.3000e-004		0.2600	0.2600	6.8000e-004		0.2769
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0111**	**1.1000e-003**	**0.1210**	**1.0000e-005**	**0.0000**	**4.3000e-004**	**4.3000e-004**	**0.0000**	**4.3000e-004**	**4.3000e-004**		**0.2600**	**0.2600**	**6.8000e-004**	**0.0000**	**0.2769**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0111	1.1000e-003	0.1210	1.0000e-005		4.3000e-004	4.3000e-004		4.3000e-004	4.3000e-004		0.2600	0.2600	6.8000e-004		0.2769
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0111**	**1.1000e-003**	**0.1210**	**1.0000e-005**	**0.0000**	**4.3000e-004**	**4.3000e-004**	**0.0000**	**4.3000e-004**	**4.3000e-004**		**0.2600**	**0.2600**	**6.8000e-004**	**0.0000**	**0.2769**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	7/1/2029	7/13/2029	5	10	
2	Grading	Grading	7/14/2029	8/24/2029	5	30	
3	Building Construction	Building Construction	8/25/2029	10/18/2030	5	300	
4	Paving	Paving	10/19/2030	11/15/2030	5	20	
5	Architectural Coating	Architectural Coating	11/16/2030	12/13/2030	5	20	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 90

Acres of Paving: 8.85

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 307,500; Non-Residential Outdoor: 102,500; Striped Parking Area: 23,592 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	6,696.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	2,009.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	231.00	98.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	46.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Temecula Hospital SEIR Construction - Phase 4 - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2029

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					20.2628	0.0000	20.2628	10.1942	0.0000	10.1942			0.0000			0.0000
Off-Road	2.4727	25.2339	17.9118	0.0381		1.0868	1.0868		0.9999	0.9999		3,689.1037	3,689.1037	1.1931		3,718.9320
Total	**2.4727**	**25.2339**	**17.9118**	**0.0381**	**20.2628**	**1.0868**	**21.3496**	**10.1942**	**0.9999**	**11.1940**		**3,689.1037**	**3,689.1037**	**1.1931**		**3,718.9320**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.3706	77.0033	24.0591	0.3390	11.7121	0.5954	12.3074	3.2103	0.5696	3.7799		37,532.0536	37,532.0536	2.3976	5.9733	39,372.0497
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0398	0.0220	0.4414	1.4800e-003	0.2012	7.9000e-004	0.2020	0.0534	7.3000e-004	0.0541		149.7376	149.7376	2.4800e-003	2.9100e-003	150.6676
Total	**1.4104**	**77.0253**	**24.5004**	**0.3405**	**11.9133**	**0.5962**	**12.5094**	**3.2637**	**0.5703**	**3.8340**		**37,681.7912**	**37,681.7912**	**2.4001**	**5.9763**	**39,522.7173**

Temecula Hospital SEIR Construction - Phase 4 - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2029

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					20.2628	0.0000	20.2628	10.1942	0.0000	10.1942			0.0000			0.0000
Off-Road	2.4727	25.2339	17.9118	0.0381		1.0868	1.0868		0.9999	0.9999	0.0000	3,689.1037	3,689.1037	1.1931		3,718.9320
Total	**2.4727**	**25.2339**	**17.9118**	**0.0381**	**20.2628**	**1.0868**	**21.3496**	**10.1942**	**0.9999**	**11.1940**	**0.0000**	**3,689.1037**	**3,689.1037**	**1.1931**		**3,718.9320**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.3706	77.0033	24.0591	0.3390	11.7121	0.5954	12.3074	3.2103	0.5696	3.7799		37,532.0536	37,532.0536	2.3976	5.9733	39,372.0497
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0398	0.0220	0.4414	1.4800e-003	0.2012	7.9000e-004	0.2020	0.0534	7.3000e-004	0.0541		149.7376	149.7376	2.4800e-003	2.9100e-003	150.6676
Total	**1.4104**	**77.0253**	**24.5004**	**0.3405**	**11.9133**	**0.5962**	**12.5094**	**3.2637**	**0.5703**	**3.8340**		**37,681.7912**	**37,681.7912**	**2.4001**	**5.9763**	**39,522.7173**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2029

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					9.2642	0.0000	9.2642	3.6629	0.0000	3.6629			0.0000			0.0000
Off-Road	2.9012	27.9429	26.3311	0.0621		1.1309	1.1309		1.0404	1.0404		6,008.2814	6,008.2814	1.9432		6,056.8614
Total	**2.9012**	**27.9429**	**26.3311**	**0.0621**	**9.2642**	**1.1309**	**10.3951**	**3.6629**	**1.0404**	**4.7034**		**6,008.2814**	**6,008.2814**	**1.9432**		**6,056.8614**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1371	7.7011	2.4062	0.0339	1.1713	0.0595	1.2309	0.3211	0.0570	0.3780		3,753.5790	3,753.5790	0.2398	0.5974	3,937.5970
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0442	0.0244	0.4904	1.6500e-003	0.2236	8.8000e-004	0.2244	0.0593	8.1000e-004	0.0601		166.3751	166.3751	2.7600e-003	3.2400e-003	167.4085
Total	**0.1813**	**7.7255**	**2.8966**	**0.0356**	**1.3949**	**0.0604**	**1.4553**	**0.3804**	**0.0578**	**0.4381**		**3,919.9541**	**3,919.9541**	**0.2425**	**0.6006**	**4,105.0054**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2029

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					9.2642	0.0000	9.2642	3.6629	0.0000	3.6629			0.0000			0.0000
Off-Road	2.9012	27.9429	26.3311	0.0621		1.1309	1.1309		1.0404	1.0404	0.0000	6,008.2814	6,008.2814	1.9432		6,056.8614
Total	**2.9012**	**27.9429**	**26.3311**	**0.0621**	**9.2642**	**1.1309**	**10.3951**	**3.6629**	**1.0404**	**4.7034**	**0.0000**	**6,008.2814**	**6,008.2814**	**1.9432**		**6,056.8614**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1371	7.7011	2.4062	0.0339	1.1713	0.0595	1.2309	0.3211	0.0570	0.3780		3,753.5790	3,753.5790	0.2398	0.5974	3,937.5970
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0442	0.0244	0.4904	1.6500e-003	0.2236	8.8000e-004	0.2244	0.0593	8.1000e-004	0.0601		166.3751	166.3751	2.7600e-003	3.2400e-003	167.4085
Total	**0.1813**	**7.7255**	**2.8966**	**0.0356**	**1.3949**	**0.0604**	**1.4553**	**0.3804**	**0.0578**	**0.4381**		**3,919.9541**	**3,919.9541**	**0.2425**	**0.6006**	**4,105.0054**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2029

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963		2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**		**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0968	3.4613	1.3092	0.0159	0.6275	0.0205	0.6480	0.1807	0.0196	0.2003		1,719.8163	1,719.8163	0.0651	0.2505	1,796.0995
Worker	0.5102	0.2818	5.6641	0.0190	2.5820	0.0102	2.5922	0.6848	9.3900e-003	0.6942		1,921.6325	1,921.6325	0.0319	0.0374	1,933.5677
Total	**0.6070**	**3.7430**	**6.9733**	**0.0349**	**3.2096**	**0.0307**	**3.2402**	**0.8654**	**0.0290**	**0.8944**		**3,641.4488**	**3,641.4488**	**0.0970**	**0.2879**	**3,729.6672**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2029

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963	0.0000	2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**	**0.0000**	**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0968	3.4613	1.3092	0.0159	0.6275	0.0205	0.6480	0.1807	0.0196	0.2003		1,719.8163	1,719.8163	0.0651	0.2505	1,796.0995
Worker	0.5102	0.2818	5.6641	0.0190	2.5820	0.0102	2.5922	0.6848	9.3900e-003	0.6942		1,921.6325	1,921.6325	0.0319	0.0374	1,933.5677
Total	**0.6070**	**3.7430**	**6.9733**	**0.0349**	**3.2096**	**0.0307**	**3.2402**	**0.8654**	**0.0290**	**0.8944**		**3,641.4488**	**3,641.4488**	**0.0970**	**0.2879**	**3,729.6672**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2030

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3091	7.9346	16.1570	0.0310		0.1481	0.1481		0.1481	0.1481		2,897.5468	2,897.5468	0.1162		2,900.4529
Total	**1.3091**	**7.9346**	**16.1570**	**0.0310**		**0.1481**	**0.1481**		**0.1481**	**0.1481**		**2,897.5468**	**2,897.5468**	**0.1162**		**2,900.4529**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0957	3.4404	1.3035	0.0156	0.6275	0.0204	0.6479	0.1807	0.0195	0.2001		1,688.1428	1,688.1428	0.0653	0.2461	1,763.1006
Worker	0.4812	0.2621	5.4330	0.0186	2.5820	9.5200e-003	2.5916	0.6848	8.7600e-003	0.6935		1,880.8622	1,880.8622	0.0295	0.0361	1,892.3446
Total	**0.5769**	**3.7025**	**6.7365**	**0.0342**	**3.2096**	**0.0299**	**3.2394**	**0.8654**	**0.0282**	**0.8937**		**3,569.0050**	**3,569.0050**	**0.0947**	**0.2821**	**3,655.4452**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2030

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3091	7.9346	16.1570	0.0310		0.1481	0.1481		0.1481	0.1481	0.0000	2,897.5468	2,897.5468	0.1162		2,900.4529
Total	**1.3091**	**7.9346**	**16.1570**	**0.0310**		**0.1481**	**0.1481**		**0.1481**	**0.1481**	**0.0000**	**2,897.5468**	**2,897.5468**	**0.1162**		**2,900.4529**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0957	3.4404	1.3035	0.0156	0.6275	0.0204	0.6479	0.1807	0.0195	0.2001		1,688.1428	1,688.1428	0.0653	0.2461	1,763.1006
Worker	0.4812	0.2621	5.4330	0.0186	2.5820	9.5200e-003	2.5916	0.6848	8.7600e-003	0.6935		1,880.8622	1,880.8622	0.0295	0.0361	1,892.3446
Total	**0.5769**	**3.7025**	**6.7365**	**0.0342**	**3.2096**	**0.0299**	**3.2394**	**0.8654**	**0.0282**	**0.8937**		**3,569.0050**	**3,569.0050**	**0.0947**	**0.2821**	**3,655.4452**

Temecula Hospital SEIR Construction - Phase 4 - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2030

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3845	7.1202	15.8495	0.0281		0.3306	0.3306		0.3306	0.3306		2,656.5168	2,656.5168	0.1245		2,659.6302
Paving	0.3576					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.7422**	**7.1202**	**15.8495**	**0.0281**		**0.3306**	**0.3306**		**0.3306**	**0.3306**		**2,656.5168**	**2,656.5168**	**0.1245**		**2,659.6302**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0313	0.0170	0.3528	1.2100e-003	0.1677	6.2000e-004	0.1683	0.0445	5.7000e-004	0.0450		122.1339	122.1339	1.9100e-003	2.3400e-003	122.8795
Total	**0.0313**	**0.0170**	**0.3528**	**1.2100e-003**	**0.1677**	**6.2000e-004**	**0.1683**	**0.0445**	**5.7000e-004**	**0.0450**		**122.1339**	**122.1339**	**1.9100e-003**	**2.3400e-003**	**122.8795**

Temecula Hospital SEIR Construction - Phase 4 - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2030

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3845	7.1202	15.8495	0.0281		0.3306	0.3306		0.3306	0.3306	0.0000	2,656.5168	2,656.5168	0.1245		2,659.6302
Paving	0.3576					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.7422**	**7.1202**	**15.8495**	**0.0281**		**0.3306**	**0.3306**		**0.3306**	**0.3306**	**0.0000**	**2,656.5168**	**2,656.5168**	**0.1245**		**2,659.6302**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0313	0.0170	0.3528	1.2100e-003	0.1677	6.2000e-004	0.1683	0.0445	5.7000e-004	0.0450		122.1339	122.1339	1.9100e-003	2.3400e-003	122.8795
Total	**0.0313**	**0.0170**	**0.3528**	**1.2100e-003**	**0.1677**	**6.2000e-004**	**0.1683**	**0.0445**	**5.7000e-004**	**0.0450**		**122.1339**	**122.1339**	**1.9100e-003**	**2.3400e-003**	**122.8795**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2030

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	50.2425					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1308	0.8563	1.7977	2.9700e-003		0.0203	0.0203		0.0203	0.0203		281.4481	281.4481	0.0114		281.7328
Total	**50.3732**	**0.8563**	**1.7977**	**2.9700e-003**		**0.0203**	**0.0203**		**0.0203**	**0.0203**		**281.4481**	**281.4481**	**0.0114**		**281.7328**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0958	0.0522	1.0819	3.7100e-003	0.5142	1.9000e-003	0.5161	0.1364	1.7400e-003	0.1381		374.5440	374.5440	5.8700e-003	7.1800e-003	376.8305
Total	**0.0958**	**0.0522**	**1.0819**	**3.7100e-003**	**0.5142**	**1.9000e-003**	**0.5161**	**0.1364**	**1.7400e-003**	**0.1381**		**374.5440**	**374.5440**	**5.8700e-003**	**7.1800e-003**	**376.8305**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2030

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	50.2425					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1308	0.8563	1.7977	2.9700e-003		0.0203	0.0203		0.0203	0.0203	0.0000	281.4481	281.4481	0.0114		281.7328
Total	**50.3732**	**0.8563**	**1.7977**	**2.9700e-003**		**0.0203**	**0.0203**		**0.0203**	**0.0203**	**0.0000**	**281.4481**	**281.4481**	**0.0114**		**281.7328**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0958	0.0522	1.0819	3.7100e-003	0.5142	1.9000e-003	0.5161	0.1364	1.7400e-003	0.1381		374.5440	374.5440	5.8700e-003	7.1800e-003	376.8305
Total	**0.0958**	**0.0522**	**1.0819**	**3.7100e-003**	**0.5142**	**1.9000e-003**	**0.5161**	**0.1364**	**1.7400e-003**	**0.1381**		**374.5440**	**374.5440**	**5.8700e-003**	**7.1800e-003**	**376.8305**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Enclosed Parking with Elevator	0.00	0.00	0.00		
Hospital	0.00	0.00	0.00		
Medical Office Building	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Enclosed Parking with Elevator	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Hospital	16.60	8.40	6.90	64.90	16.10	19.00	73	25	2
Medical Office Building	16.60	8.40	6.90	29.60	51.40	19.00	60	30	10

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Enclosed Parking with Elevator	0.541709	0.062136	0.185590	0.128486	0.023783	0.006533	0.012157	0.009216	0.000814	0.000497	0.024669	0.000753	0.003657
Hospital	0.541709	0.062136	0.185590	0.128486	0.023783	0.006533	0.012157	0.009216	0.000814	0.000497	0.024669	0.000753	0.003657
Medical Office Building	0.541709	0.062136	0.185590	0.128486	0.023783	0.006533	0.012157	0.009216	0.000814	0.000497	0.024669	0.000753	0.003657
Parking Lot	0.541709	0.062136	0.185590	0.128486	0.023783	0.006533	0.012157	0.009216	0.000814	0.000497	0.024669	0.000753	0.003657

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Hospital	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Hospital	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0111	1.1000e-003	0.1210	1.0000e-005		4.3000e-004	4.3000e-004		4.3000e-004	4.3000e-004		0.2600	0.2600	6.8000e-004		0.2769
Unmitigated	0.0111	1.1000e-003	0.1210	1.0000e-005		4.3000e-004	4.3000e-004		4.3000e-004	4.3000e-004		0.2600	0.2600	6.8000e-004		0.2769

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0111	1.1000e-003	0.1210	1.0000e-005		4.3000e-004	4.3000e-004		4.3000e-004	4.3000e-004		0.2600	0.2600	6.8000e-004		0.2769
Total	**0.0111**	**1.1000e-003**	**0.1210**	**1.0000e-005**		**4.3000e-004**	**4.3000e-004**		**4.3000e-004**	**4.3000e-004**		**0.2600**	**0.2600**	**6.8000e-004**		**0.2769**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0111	1.1000e-003	0.1210	1.0000e-005		4.3000e-004	4.3000e-004		4.3000e-004	4.3000e-004		0.2600	0.2600	6.8000e-004		0.2769
Total	**0.0111**	**1.1000e-003**	**0.1210**	**1.0000e-005**		**4.3000e-004**	**4.3000e-004**		**4.3000e-004**	**4.3000e-004**		**0.2600**	**0.2600**	**6.8000e-004**		**0.2769**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Temecula Hospital SEIR Construction - Phase 4 [Mitigated Run]

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Hospital	125.00	1000sqft	2.87	125,000.00	0
Medical Office Building	80.00	1000sqft	1.84	80,000.00	0
Enclosed Parking with Elevator	680.00	Space	6.12	272,000.00	0
Parking Lot	303.00	Space	2.73	121,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2025
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	263	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Construction Run only

Land Use - Phase 4 Construction
3# Hospital Tower - 125,000 sqft
2# Medical Office Building - 80,000 sqft
Parking Spaces - 303
Parking Structure - 608

Construction Phase - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment -

Temecula Hospital SEIR Construction - Phase 4 [Mitigated Run] - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Off-road Equipment - CalEEMod Defaults Used

Trips and VMT - CalEEMod Defaults Used

On-road Fugitive Dust - CalEEMod Defaults Used

Demolition - No Demolition

Grading - Total Import/Export and Grading quantities were scaled according to the sqft of each phase.
Import Quantity - 41,070 CY
Export Quantity - 12,500 CY
Grading Quantity - 16,071 CY

Architectural Coating - Archetectural coating mititgation measure applied

Vehicle Trips - No Operations

Vehicle Emission Factors - No Operations

Vehicle Emission Factors - No Operations

Vehicle Emission Factors - No Operations

Road Dust - No Operations

Woodstoves - No Operations

Consumer Products - No Operations

Area Coating - No Operations

Landscape Equipment - No Operations

Energy Use - No Operations

Water And Wastewater - No Operations

Solid Waste - No Operations

Land Use Change - No Operations

Sequestration - No Operations

Construction Off-road Equipment Mitigation - Tier 4 mitigation measure applied

Area Mitigation -

Operational Off-Road Equipment - No Operations

Fleet Mix - No Operations

Stationary Sources - Emergency Generators and Fire Pumps - No Operations

Temecula Hospital SEIR Construction - Phase 4 [Mitigated Run] - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Stationary Sources - Process Boilers - No Operations
Stationary Sources - User Defined - No Operations

Stationary Sources - Emergency Generators and Fire Pumps EF - No Operations

Stationary Sources - Process Boilers EF - No Operations

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	10.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	10.00
tblArchitecturalCoating	EF_Parking	100.00	10.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	100	0
tblAreaCoating	Area_EF_Nonresidential_Interior	100	0
tblAreaCoating	Area_EF_Parking	100	0
tblAreaCoating	Area_EF_Residential_Exterior	50	0
tblAreaCoating	Area_EF_Residential_Interior	50	0
tblAreaCoating	Area_Nonresidential_Exterior	102500	0
tblAreaCoating	Area_Nonresidential_Interior	307500	0
tblAreaCoating	Area_Parking	23592	0
tblAreaCoating	ReapplicationRatePercent	10	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConsumerProducts	ROG_EF	1.98E-05	0
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	0
tblConsumerProducts	ROG_EF_PesticidesFertilizers	5.152E-08	0
tblEnergyUse	LightingElect	1.75	0.00
tblEnergyUse	LightingElect	4.52	0.00
tblEnergyUse	LightingElect	3.66	0.00
tblEnergyUse	LightingElect	0.35	0.00
tblEnergyUse	NT24E	0.19	0.00
tblEnergyUse	NT24E	5.56	0.00
tblEnergyUse	NT24E	2.79	0.00
tblEnergyUse	NT24NG	6.03	0.00
tblEnergyUse	T24E	3.50	0.00
tblEnergyUse	T24E	7.45	0.00
tblEnergyUse	T24E	2.74	0.00
tblEnergyUse	T24NG	68.80	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblEnergyUse	T24NG	3.43	0.00
tblGrading	MaterialExported	0.00	12,500.00
tblGrading	MaterialImported	0.00	16,071.00
tblGrading	MaterialImported	0.00	41,070.00
tblLandscapeEquipment	NumberSummerDays	250	0
tblProjectCharacteristics	CH4IntensityFactor	0.033	0
tblProjectCharacteristics	CO2IntensityFactor	390.98	263
tblProjectCharacteristics	N2OIntensityFactor	0.004	0
tblRoadDust	MaterialMoistureContent	0.5	0
tblRoadDust	MaterialSiltContent	4.3	0
tblRoadDust	MeanVehicleSpeed	40	0
tblRoadDust	MobileAverageVehicleWeight	2.4	0
tblRoadDust	RoadPercentPave	100	0
tblRoadDust	RoadSiltLoading	0.1	0
tblSolidWaste	SolidWasteGenerationRate	1,350.00	0.00
tblSolidWaste	SolidWasteGenerationRate	864.00	0.00
tblVehicleTrips	ST_TR	7.72	0.00
tblVehicleTrips	ST_TR	8.57	0.00
tblVehicleTrips	SU_TR	6.77	0.00
tblVehicleTrips	SU_TR	1.42	0.00
tblVehicleTrips	WD_TR	10.72	0.00
tblVehicleTrips	WD_TR	34.80	0.00
tblWater	IndoorWaterUseRate	15,685,067.19	0.00
tblWater	IndoorWaterUseRate	10,038,443.00	0.00
tblWater	OutdoorWaterUseRate	2,987,631.85	0.00
tblWater	OutdoorWaterUseRate	1,912,084.38	0.00

2.0 Emissions Summary

Temecula Hospital SEIR Construction - Phase 4 [Mitigated Run] - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2029	3.8831	102.2592	42.4122	0.3786	32.1761	1.6830	33.8590	13.4579	1.5702	15.0281	0.0000	41,370.8949	41,370.8949	3.5932	5.9763	43,241.6493
2030	10.2751	11.6372	22.8935	0.0652	3.2096	0.3313	3.3876	0.8654	0.3312	1.0418	0.0000	6,466.5518	6,466.5518	0.2110	0.2821	6,555.8981
Maximum	**10.2751**	**102.2592**	**42.4122**	**0.3786**	**32.1761**	**1.6830**	**33.8590**	**13.4579**	**1.5702**	**15.0281**	**0.0000**	**41,370.8949**	**41,370.8949**	**3.5932**	**5.9763**	**43,241.6493**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2029	1.8760	79.0428	45.3694	0.3786	19.8158	0.6582	20.4740	7.2394	0.6324	7.8718	0.0000	41,370.8949	41,370.8949	3.5932	5.9763	43,241.6493
2030	10.1740	5.9372	24.1967	0.0652	3.2096	0.0707	3.2802	0.8654	0.0690	0.9345	0.0000	6,466.5518	6,466.5518	0.2110	0.2821	6,555.8981
Maximum	**10.1740**	**79.0428**	**45.3694**	**0.3786**	**19.8158**	**0.6582**	**20.4740**	**7.2394**	**0.6324**	**7.8718**	**0.0000**	**41,370.8949**	**41,370.8949**	**3.5932**	**5.9763**	**43,241.6493**

Temecula Hospital SEIR Construction - Phase 4 [Mitigated Run] - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	14.89	25.39	-6.52	0.00	34.93	63.81	36.22	43.41	63.11	45.20	0.00	0.00	0.00	0.00	0.00	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0111	1.1000e-003	0.1210	1.0000e-005		4.3000e-004	4.3000e-004		4.3000e-004	4.3000e-004		0.2600	0.2600	6.8000e-004		0.2769
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0111**	**1.1000e-003**	**0.1210**	**1.0000e-005**	**0.0000**	**4.3000e-004**	**4.3000e-004**	**0.0000**	**4.3000e-004**	**4.3000e-004**		**0.2600**	**0.2600**	**6.8000e-004**	**0.0000**	**0.2769**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0111	1.1000e-003	0.1210	1.0000e-005		4.3000e-004	4.3000e-004		4.3000e-004	4.3000e-004		0.2600	0.2600	6.8000e-004		0.2769
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0111**	**1.1000e-003**	**0.1210**	**1.0000e-005**	**0.0000**	**4.3000e-004**	**4.3000e-004**	**0.0000**	**4.3000e-004**	**4.3000e-004**		**0.2600**	**0.2600**	**6.8000e-004**	**0.0000**	**0.2769**

Temecula Hospital SEIR Construction - Phase 4 [Mitigated Run] - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	7/1/2029	7/13/2029	5	10	
2	Grading	Grading	7/14/2029	8/24/2029	5	30	
3	Building Construction	Building Construction	8/25/2029	10/18/2030	5	300	
4	Paving	Paving	10/19/2030	11/15/2030	5	20	
5	Architectural Coating	Architectural Coating	11/16/2030	12/13/2030	5	20	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 90

Acres of Paving: 8.85

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 307,500; Non-Residential Outdoor: 102,500; Striped Parking Area: 23,592 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	6,696.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	2,009.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	231.00	98.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	46.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2029

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					20.2628	0.0000	20.2628	10.1942	0.0000	10.1942			0.0000			0.0000
Off-Road	2.4727	25.2339	17.9118	0.0381		1.0868	1.0868		0.9999	0.9999		3,689.1037	3,689.1037	1.1931		3,718.9320
Total	**2.4727**	**25.2339**	**17.9118**	**0.0381**	**20.2628**	**1.0868**	**21.3496**	**10.1942**	**0.9999**	**11.1940**		**3,689.1037**	**3,689.1037**	**1.1931**		**3,718.9320**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.3706	77.0033	24.0591	0.3390	11.7121	0.5954	12.3074	3.2103	0.5696	3.7799		37,532.0536	37,532.0536	2.3976	5.9733	39,372.0497
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0398	0.0220	0.4414	1.4800e-003	0.2012	7.9000e-004	0.2020	0.0534	7.3000e-004	0.0541		149.7376	149.7376	2.4800e-003	2.9100e-003	150.6676
Total	**1.4104**	**77.0253**	**24.5004**	**0.3405**	**11.9133**	**0.5962**	**12.5094**	**3.2637**	**0.5703**	**3.8340**		**37,681.7912**	**37,681.7912**	**2.4001**	**5.9763**	**39,522.7173**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2029

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.9025	0.0000	7.9025	3.9757	0.0000	3.9757			0.0000			0.0000
Off-Road	0.4656	2.0175	20.8690	0.0381		0.0621	0.0621		0.0621	0.0621	0.0000	3,689.1037	3,689.1037	1.1931		3,718.9320
Total	**0.4656**	**2.0175**	**20.8690**	**0.0381**	**7.9025**	**0.0621**	**7.9646**	**3.9757**	**0.0621**	**4.0378**	**0.0000**	**3,689.1037**	**3,689.1037**	**1.1931**		**3,718.9320**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.3706	77.0033	24.0591	0.3390	11.7121	0.5954	12.3074	3.2103	0.5696	3.7799		37,532.0536	37,532.0536	2.3976	5.9733	39,372.0497
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0398	0.0220	0.4414	1.4800e-003	0.2012	7.9000e-004	0.2020	0.0534	7.3000e-004	0.0541		149.7376	149.7376	2.4800e-003	2.9100e-003	150.6676
Total	**1.4104**	**77.0253**	**24.5004**	**0.3405**	**11.9133**	**0.5962**	**12.5094**	**3.2637**	**0.5703**	**3.8340**		**37,681.7912**	**37,681.7912**	**2.4001**	**5.9763**	**39,522.7173**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2029

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					9.2642	0.0000	9.2642	3.6629	0.0000	3.6629			0.0000			0.0000
Off-Road	2.9012	27.9429	26.3311	0.0621		1.1309	1.1309		1.0404	1.0404		6,008.2814	6,008.2814	1.9432		6,056.8614
Total	**2.9012**	**27.9429**	**26.3311**	**0.0621**	**9.2642**	**1.1309**	**10.3951**	**3.6629**	**1.0404**	**4.7034**		**6,008.2814**	**6,008.2814**	**1.9432**		**6,056.8614**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1371	7.7011	2.4062	0.0339	1.1713	0.0595	1.2309	0.3211	0.0570	0.3780		3,753.5790	3,753.5790	0.2398	0.5974	3,937.5970
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0442	0.0244	0.4904	1.6500e-003	0.2236	8.8000e-004	0.2244	0.0593	8.1000e-004	0.0601		166.3751	166.3751	2.7600e-003	3.2400e-003	167.4085
Total	**0.1813**	**7.7255**	**2.8966**	**0.0356**	**1.3949**	**0.0604**	**1.4553**	**0.3804**	**0.0578**	**0.4381**		**3,919.9541**	**3,919.9541**	**0.2425**	**0.6006**	**4,105.0054**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2029

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.6130	0.0000	3.6130	1.4285	0.0000	1.4285			0.0000			0.0000
Off-Road	0.7616	3.3000	32.9991	0.0621		0.1015	0.1015		0.1015	0.1015	0.0000	6,008.2814	6,008.2814	1.9432		6,056.8614
Total	**0.7616**	**3.3000**	**32.9991**	**0.0621**	**3.6130**	**0.1015**	**3.7146**	**1.4285**	**0.1015**	**1.5301**	**0.0000**	**6,008.2814**	**6,008.2814**	**1.9432**		**6,056.8614**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1371	7.7011	2.4062	0.0339	1.1713	0.0595	1.2309	0.3211	0.0570	0.3780		3,753.5790	3,753.5790	0.2398	0.5974	3,937.5970
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0442	0.0244	0.4904	1.6500e-003	0.2236	8.8000e-004	0.2244	0.0593	8.1000e-004	0.0601		166.3751	166.3751	2.7600e-003	3.2400e-003	167.4085
Total	**0.1813**	**7.7255**	**2.8966**	**0.0356**	**1.3949**	**0.0604**	**1.4553**	**0.3804**	**0.0578**	**0.4381**		**3,919.9541**	**3,919.9541**	**0.2425**	**0.6006**	**4,105.0054**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2029

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963		2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**		**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0968	3.4613	1.3092	0.0159	0.6275	0.0205	0.6480	0.1807	0.0196	0.2003		1,719.8163	1,719.8163	0.0651	0.2505	1,796.0995
Worker	0.5102	0.2818	5.6641	0.0190	2.5820	0.0102	2.5922	0.6848	9.3900e-003	0.6942		1,921.6325	1,921.6325	0.0319	0.0374	1,933.5677
Total	**0.6070**	**3.7430**	**6.9733**	**0.0349**	**3.2096**	**0.0307**	**3.2402**	**0.8654**	**0.0290**	**0.8944**		**3,641.4488**	**3,641.4488**	**0.0970**	**0.2879**	**3,729.6672**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2029

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3278	2.2347	17.4603	0.0270		0.0408	0.0408		0.0408	0.0408	0.0000	2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**0.3278**	**2.2347**	**17.4603**	**0.0270**		**0.0408**	**0.0408**		**0.0408**	**0.0408**	**0.0000**	**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0968	3.4613	1.3092	0.0159	0.6275	0.0205	0.6480	0.1807	0.0196	0.2003		1,719.8163	1,719.8163	0.0651	0.2505	1,796.0995
Worker	0.5102	0.2818	5.6641	0.0190	2.5820	0.0102	2.5922	0.6848	9.3900e-003	0.6942		1,921.6325	1,921.6325	0.0319	0.0374	1,933.5677
Total	**0.6070**	**3.7430**	**6.9733**	**0.0349**	**3.2096**	**0.0307**	**3.2402**	**0.8654**	**0.0290**	**0.8944**		**3,641.4488**	**3,641.4488**	**0.0970**	**0.2879**	**3,729.6672**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2030

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3091	7.9346	16.1570	0.0310		0.1481	0.1481		0.1481	0.1481		2,897.5468	2,897.5468	0.1162		2,900.4529
Total	**1.3091**	**7.9346**	**16.1570**	**0.0310**		**0.1481**	**0.1481**		**0.1481**	**0.1481**		**2,897.5468**	**2,897.5468**	**0.1162**		**2,900.4529**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0957	3.4404	1.3035	0.0156	0.6275	0.0204	0.6479	0.1807	0.0195	0.2001		1,688.1428	1,688.1428	0.0653	0.2461	1,763.1006
Worker	0.4812	0.2621	5.4330	0.0186	2.5820	9.5200e-003	2.5916	0.6848	8.7600e-003	0.6935		1,880.8622	1,880.8622	0.0295	0.0361	1,892.3446
Total	**0.5769**	**3.7025**	**6.7365**	**0.0342**	**3.2096**	**0.0299**	**3.2394**	**0.8654**	**0.0282**	**0.8937**		**3,569.0050**	**3,569.0050**	**0.0947**	**0.2821**	**3,655.4452**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2030

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3278	2.2347	17.4603	0.0310		0.0408	0.0408		0.0408	0.0408	0.0000	2,897.5468	2,897.5468	0.1162		2,900.4529
Total	**0.3278**	**2.2347**	**17.4603**	**0.0310**		**0.0408**	**0.0408**		**0.0408**	**0.0408**	**0.0000**	**2,897.5468**	**2,897.5468**	**0.1162**		**2,900.4529**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0957	3.4404	1.3035	0.0156	0.6275	0.0204	0.6479	0.1807	0.0195	0.2001		1,688.1428	1,688.1428	0.0653	0.2461	1,763.1006
Worker	0.4812	0.2621	5.4330	0.0186	2.5820	9.5200e-003	2.5916	0.6848	8.7600e-003	0.6935		1,880.8622	1,880.8622	0.0295	0.0361	1,892.3446
Total	**0.5769**	**3.7025**	**6.7365**	**0.0342**	**3.2096**	**0.0299**	**3.2394**	**0.8654**	**0.0282**	**0.8937**		**3,569.0050**	**3,569.0050**	**0.0947**	**0.2821**	**3,655.4452**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2030

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3845	7.1202	15.8495	0.0281		0.3306	0.3306		0.3306	0.3306		2,656.5168	2,656.5168	0.1245		2,659.6302
Paving	0.3576					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.7422**	**7.1202**	**15.8495**	**0.0281**		**0.3306**	**0.3306**		**0.3306**	**0.3306**		**2,656.5168**	**2,656.5168**	**0.1245**		**2,659.6302**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0313	0.0170	0.3528	1.2100e-003	0.1677	6.2000e-004	0.1683	0.0445	5.7000e-004	0.0450		122.1339	122.1339	1.9100e-003	2.3400e-003	122.8795
Total	**0.0313**	**0.0170**	**0.3528**	**1.2100e-003**	**0.1677**	**6.2000e-004**	**0.1683**	**0.0445**	**5.7000e-004**	**0.0450**		**122.1339**	**122.1339**	**1.9100e-003**	**2.3400e-003**	**122.8795**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2030

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2805	1.2154	17.2957	0.0281		0.0374	0.0374		0.0374	0.0374	0.0000	2,656.5168	2,656.5168	0.1245		2,659.6302
Paving	0.3576					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6381**	**1.2154**	**17.2957**	**0.0281**		**0.0374**	**0.0374**		**0.0374**	**0.0374**	**0.0000**	**2,656.5168**	**2,656.5168**	**0.1245**		**2,659.6302**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0313	0.0170	0.3528	1.2100e-003	0.1677	6.2000e-004	0.1683	0.0445	5.7000e-004	0.0450		122.1339	122.1339	1.9100e-003	2.3400e-003	122.8795
Total	**0.0313**	**0.0170**	**0.3528**	**1.2100e-003**	**0.1677**	**6.2000e-004**	**0.1683**	**0.0445**	**5.7000e-004**	**0.0450**		**122.1339**	**122.1339**	**1.9100e-003**	**2.3400e-003**	**122.8795**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2030

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	10.0485					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1308	0.8563	1.7977	2.9700e-003		0.0203	0.0203		0.0203	0.0203		281.4481	281.4481	0.0114		281.7328
Total	**10.1792**	**0.8563**	**1.7977**	**2.9700e-003**		**0.0203**	**0.0203**		**0.0203**	**0.0203**		**281.4481**	**281.4481**	**0.0114**		**281.7328**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0958	0.0522	1.0819	3.7100e-003	0.5142	1.9000e-003	0.5161	0.1364	1.7400e-003	0.1381		374.5440	374.5440	5.8700e-003	7.1800e-003	376.8305
Total	**0.0958**	**0.0522**	**1.0819**	**3.7100e-003**	**0.5142**	**1.9000e-003**	**0.5161**	**0.1364**	**1.7400e-003**	**0.1381**		**374.5440**	**374.5440**	**5.8700e-003**	**7.1800e-003**	**376.8305**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2030

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	10.0485					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0114		281.7328
Total	**10.0782**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0114**		**281.7328**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0958	0.0522	1.0819	3.7100e-003	0.5142	1.9000e-003	0.5161	0.1364	1.7400e-003	0.1381		374.5440	374.5440	5.8700e-003	7.1800e-003	376.8305
Total	**0.0958**	**0.0522**	**1.0819**	**3.7100e-003**	**0.5142**	**1.9000e-003**	**0.5161**	**0.1364**	**1.7400e-003**	**0.1381**		**374.5440**	**374.5440**	**5.8700e-003**	**7.1800e-003**	**376.8305**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Enclosed Parking with Elevator	0.00	0.00	0.00		
Hospital	0.00	0.00	0.00		
Medical Office Building	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Enclosed Parking with Elevator	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Hospital	16.60	8.40	6.90	64.90	16.10	19.00	73	25	2
Medical Office Building	16.60	8.40	6.90	29.60	51.40	19.00	60	30	10

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Enclosed Parking with Elevator	0.541709	0.062136	0.185590	0.128486	0.023783	0.006533	0.012157	0.009216	0.000814	0.000497	0.024669	0.000753	0.003657
Hospital	0.541709	0.062136	0.185590	0.128486	0.023783	0.006533	0.012157	0.009216	0.000814	0.000497	0.024669	0.000753	0.003657
Medical Office Building	0.541709	0.062136	0.185590	0.128486	0.023783	0.006533	0.012157	0.009216	0.000814	0.000497	0.024669	0.000753	0.003657
Parking Lot	0.541709	0.062136	0.185590	0.128486	0.023783	0.006533	0.012157	0.009216	0.000814	0.000497	0.024669	0.000753	0.003657

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Temecula Hospital SEIR Construction - Phase 4 [Mitigated Run] - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Hospital	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Hospital	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0111	1.1000e-003	0.1210	1.0000e-005		4.3000e-004	4.3000e-004		4.3000e-004	4.3000e-004		0.2600	0.2600	6.8000e-004		0.2769
Unmitigated	0.0111	1.1000e-003	0.1210	1.0000e-005		4.3000e-004	4.3000e-004		4.3000e-004	4.3000e-004		0.2600	0.2600	6.8000e-004		0.2769

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0111	1.1000e-003	0.1210	1.0000e-005		4.3000e-004	4.3000e-004		4.3000e-004	4.3000e-004		0.2600	0.2600	6.8000e-004		0.2769
Total	**0.0111**	**1.1000e-003**	**0.1210**	**1.0000e-005**		**4.3000e-004**	**4.3000e-004**		**4.3000e-004**	**4.3000e-004**		**0.2600**	**0.2600**	**6.8000e-004**		**0.2769**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0111	1.1000e-003	0.1210	1.0000e-005		4.3000e-004	4.3000e-004		4.3000e-004	4.3000e-004		0.2600	0.2600	6.8000e-004		0.2769
Total	**0.0111**	**1.1000e-003**	**0.1210**	**1.0000e-005**		**4.3000e-004**	**4.3000e-004**		**4.3000e-004**	**4.3000e-004**		**0.2600**	**0.2600**	**6.8000e-004**		**0.2769**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Temecula Hospital SEIR - Operations

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Hospital	20.00	1000sqft	0.46	20,000.00	0
Hospital	125.00	1000sqft	2.87	125,000.00	0
Hospital	125.00	1000sqft	2.87	125,000.00	0
Medical Office Building	102.00	1000sqft	2.34	102,000.00	0
Medical Office Building	80.00	1000sqft	1.84	80,000.00	0
Medical Office Building	80.00	1000sqft	1.84	80,000.00	0
Enclosed Parking with Elevator	680.00	Space	6.12	272,000.00	0
Parking Lot	1,305.00	Space	11.74	522,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2035
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	263	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - SCE GHG Efs from CAPCOA Guide 2022.1, Appendix C, Table E-4.4, for 2035: https://www.caleemod.com/documents/handbook/appendices/appendix_c.pdf

Land Use - Land Uses based on PD. Hospital = 20 tsf ED Expansion + 125 tsf Hospital Tower 2 + 125 tsf Hospital Tower 3. Medical Office = 102 tsf behavioral health (converted from 144 beds) + 80 tsf medical office + 80 tsf medical office. Parking from PD. Utility Plant (modeled as Warehouse in Construction runs) not included here b/c emissions associated with boilers only (thus a 14 tsf difference).

Construction Phase - Operational run only

Temecula Hospital SEIR - Operations - South Coast AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Off-road Equipment - Operational run only

Off-road Equipment - Operational run only

Off-road Equipment - Operational run only

Off-road Equipment - Operational run only

Off-road Equipment - Operational run only

Off-road Equipment - Operational run only

Trips and VMT - Operational run only

On-road Fugitive Dust - Operational run only

Demolition - Operational run only

Grading - Operational run only

Architectural Coating - Operational run only

Vehicle Trips - Trip Rates based on PD. Hospital of 10.77 = 2907 ADT / 270 tsf; Medical Office of 22.59 = =5,916 ADT / 262 TSF. VMT per trip based on 25,950 VMT (Table 3.13-1 of this EIR) / 8,823 ADT. 100% primary trips because pass-by and diverted accounted for in VMT estimates.

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Area Coating - 100 g/l for non-res ext and interior and parking, based on SCAQMD Rule 1113, taken from caleemod2022 appendices

Energy Use - Natural gas energy for the hospital will be provided by the central utility, so Hospital NG zeroed out. All others based on default.

Water And Wastewater - default water and wastewater

Solid Waste - default solid waste

Area Mitigation - coatings per AQMD Rule

Fleet Mix -

Stationary Sources - Process Boilers - 4 NG boilers, 128 MMBtu per day, 46,915 MMBtu per year

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	0.00
tblArchitecturalCoating	EF_Parking	100.00	0.00
tblArchitecturalCoating	EF_Residential_Exterior	50.00	0.00

Temecula Hospital SEIR - Operations - South Coast AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblArchitecturalCoating	EF_Residential_Interior	50.00	0.00
tblConstructionPhase	NumDays	35.00	0.00
tblConstructionPhase	NumDays	500.00	0.00
tblConstructionPhase	NumDays	30.00	0.00
tblConstructionPhase	NumDays	45.00	0.00
tblConstructionPhase	NumDays	35.00	0.00
tblConstructionPhase	NumDays	20.00	0.00
tblEnergyUse	NT24NG	6.03	0.00
tblEnergyUse	T24NG	68.80	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.033	0

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblProjectCharacteristics	CO2IntensityFactor	390.98	263
tblProjectCharacteristics	N2OIntensityFactor	0.004	0
tblStationaryBoilersUse	AnnualHeatInput	0.00	46,915.00
tblStationaryBoilersUse	DailyHeatInput	0.00	128.00
tblStationaryBoilersUse	NumberOfEquipment	0.00	4.00
tblTripsAndVMT	VendorTripNumber	217.00	0.00
tblTripsAndVMT	WorkerTripNumber	504.00	0.00
tblTripsAndVMT	WorkerTripNumber	101.00	0.00
tblVehicleTrips	CC_TL	8.40	2.94
tblVehicleTrips	CC_TL	8.40	2.94
tblVehicleTrips	CNW_TL	6.90	2.94
tblVehicleTrips	CNW_TL	6.90	2.94
tblVehicleTrips	CW_TL	16.60	2.94
tblVehicleTrips	CW_TL	16.60	2.94
tblVehicleTrips	DV_TP	25.00	0.00
tblVehicleTrips	DV_TP	30.00	0.00
tblVehicleTrips	PB_TP	2.00	0.00
tblVehicleTrips	PB_TP	10.00	0.00
tblVehicleTrips	PR_TP	73.00	100.00
tblVehicleTrips	PR_TP	60.00	100.00
tblVehicleTrips	ST_TR	7.72	10.77
tblVehicleTrips	ST_TR	8.57	22.59
tblVehicleTrips	SU_TR	6.77	10.77
tblVehicleTrips	SU_TR	1.42	22.59
tblVehicleTrips	WD_TR	10.72	10.77
tblVehicleTrips	WD_TR	34.80	22.59

2.0 Emissions Summary

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2025	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2025	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.2343	2.9000e-004	0.0319	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	0.0625	0.0625	1.6000e-004	0.0000	0.0665
Energy	4.8500e-003	0.0441	0.0370	2.6000e-004		3.3500e-003	3.3500e-003		3.3500e-003	3.3500e-003	0.0000	1,098.1390	1,098.1390	9.2000e-004	8.8000e-004	1,098.4240
Mobile	2.0225	1.7204	15.8344	0.0275	3.5564	0.0172	3.5736	0.9492	0.0161	0.9653	0.0000	2,541.6162	2,541.6162	0.2246	0.1502	2,592.0009
Stationary	0.5060	2.2520	9.0152	0.0552		0.6991	0.6991		0.6991	0.6991	0.0000	10,014.4234	10,014.4234	0.1919	0.0000	10,019.2219
Waste						0.0000	0.0000		0.0000	0.0000	1,166.3049	0.0000	1,166.3049	68.9266	0.0000	2,889.4710
Water						0.0000	0.0000		0.0000	0.0000	21.1785	120.5466	141.7250	2.1752	0.0514	211.4117
Total	**4.7676**	**4.0167**	**24.9185**	**0.0829**	**3.5564**	**0.7198**	**4.2762**	**0.9492**	**0.7187**	**1.6679**	**1,187.4834**	**13,774.7875**	**14,962.2709**	**71.5195**	**0.2025**	**16,810.5960**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.2343	2.9000e-004	0.0319	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	0.0625	0.0625	1.6000e-004	0.0000	0.0665
Energy	4.8500e-003	0.0441	0.0370	2.6000e-004		3.3500e-003	3.3500e-003		3.3500e-003	3.3500e-003	0.0000	1,098.1390	1,098.1390	9.2000e-004	8.8000e-004	1,098.4240
Mobile	2.0225	1.7204	15.8344	0.0275	3.5564	0.0172	3.5736	0.9492	0.0161	0.9653	0.0000	2,541.6162	2,541.6162	0.2246	0.1502	2,592.0009
Stationary	0.5060	2.2520	9.0152	0.0552		0.6991	0.6991		0.6991	0.6991	0.0000	10,014.4234	10,014.4234	0.1919	0.0000	10,019.2219
Waste						0.0000	0.0000		0.0000	0.0000	1,166.3049	0.0000	1,166.3049	68.9266	0.0000	2,889.4710
Water						0.0000	0.0000		0.0000	0.0000	21.1785	120.5466	141.7250	2.1752	0.0514	211.4117
Total	**4.7676**	**4.0167**	**24.9185**	**0.0829**	**3.5564**	**0.7198**	**4.2762**	**0.9492**	**0.7187**	**1.6679**	**1,187.4834**	**13,774.7875**	**14,962.2709**	**71.5195**	**0.2025**	**16,810.5960**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2023	12/30/2022	5	0	
2	Site Preparation	Site Preparation	2/11/2023	2/10/2023	5	0	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3	Grading	Grading	3/11/2023	3/10/2023	5	0	
4	Building Construction	Building Construction	5/13/2023	5/12/2023	5	0	
5	Paving	Paving	4/12/2025	4/11/2025	5	0	
6	Architectural Coating	Architectural Coating	5/31/2025	5/30/2025	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 17.86

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 798,000; Non-Residential Outdoor: 266,000; Striped Parking Area: 47,640 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	0	6.00	78	0.48
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Building Construction	Cranes	0	7.00	231	0.29
Demolition	Excavators	0	8.00	158	0.38
Grading	Excavators	0	8.00	158	0.38
Building Construction	Forklifts	0	8.00	89	0.20
Building Construction	Generator Sets	0	8.00	84	0.74
Grading	Graders	0	8.00	187	0.41
Paving	Pavers	0	8.00	130	0.42
Paving	Paving Equipment	0	8.00	132	0.36
Paving	Rollers	0	8.00	80	0.38
Demolition	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Scrapers	0	8.00	367	0.48
Building Construction	Tractors/Loaders/Backhoes	0	7.00	97	0.37

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Building Construction	Welders	0	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	0	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	0	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	0	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	0	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	0	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.3 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Architectural Coating - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Architectural Coating - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	2.0225	1.7204	15.8344	0.0275	3.5564	0.0172	3.5736	0.9492	0.0161	0.9653	0.0000	2,541.6162	2,541.6162	0.2246	0.1502	2,592.0009
Unmitigated	2.0225	1.7204	15.8344	0.0275	3.5564	0.0172	3.5736	0.9492	0.0161	0.9653	0.0000	2,541.6162	2,541.6162	0.2246	0.1502	2,592.0009

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Enclosed Parking with Elevator	0.00	0.00	0.00		
Hospital	215.40	215.40	215.40	230,512	230,512
Hospital	1,346.25	1,346.25	1346.25	1,440,703	1,440,703
Hospital	1,346.25	1,346.25	1346.25	1,440,703	1,440,703
Medical Office Building	2,304.18	2,304.18	2304.18	2,465,841	2,465,841
Medical Office Building	1,807.20	1,807.20	1807.20	1,933,993	1,933,993
Medical Office Building	1,807.20	1,807.20	1807.20	1,933,993	1,933,993
Parking Lot	0.00	0.00	0.00		
Total	8,826.48	8,826.48	8,826.48	9,445,746	9,445,746

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Enclosed Parking with Elevator	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Hospital	2.94	2.94	2.94	64.90	16.10	19.00	100	0	0
Hospital	2.94	2.94	2.94	64.90	16.10	19.00	100	0	0
Hospital	2.94	2.94	2.94	64.90	16.10	19.00	100	0	0

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Medical Office Building	2.94	2.94	2.94	29.60	51.40	19.00	100	0	0
Medical Office Building	2.94	2.94	2.94	29.60	51.40	19.00	100	0	0
Medical Office Building	2.94	2.94	2.94	29.60	51.40	19.00	100	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Enclosed Parking with Elevator	0.533516	0.066498	0.189801	0.125856	0.024330	0.007176	0.012787	0.008479	0.000809	0.000452	0.026193	0.000781	0.003322
Hospital	0.533516	0.066498	0.189801	0.125856	0.024330	0.007176	0.012787	0.008479	0.000809	0.000452	0.026193	0.000781	0.003322
Medical Office Building	0.533516	0.066498	0.189801	0.125856	0.024330	0.007176	0.012787	0.008479	0.000809	0.000452	0.026193	0.000781	0.003322
Parking Lot	0.533516	0.066498	0.189801	0.125856	0.024330	0.007176	0.012787	0.008479	0.000809	0.000452	0.026193	0.000781	0.003322

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Temecula Hospital SEIR - Operations - South Coast AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,050.1831	1,050.1831	0.0000	0.0000	1,050.1831
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,050.1831	1,050.1831	0.0000	0.0000	1,050.1831
NaturalGas Mitigated	4.8500e-003	0.0441	0.0370	2.6000e-004		3.3500e-003	3.3500e-003		3.3500e-003	3.3500e-003	0.0000	47.9559	47.9559	9.2000e-004	8.8000e-004	48.2409
NaturalGas Unmitigated	4.8500e-003	0.0441	0.0370	2.6000e-004		3.3500e-003	3.3500e-003		3.3500e-003	3.3500e-003	0.0000	47.9559	47.9559	9.2000e-004	8.8000e-004	48.2409

Temecula Hospital SEIR - Operations - South Coast AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hospital	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Medical Office Building	274400	2.9600e-003	0.0269	0.0226	1.6000e-004		2.0400e-003	2.0400e-003		2.0400e-003	2.0400e-003	0.0000	29.2861	29.2861	5.6000e-004	5.4000e-004	29.4601
Medical Office Building	349860	1.8900e-003	0.0172	0.0144	1.0000e-004		1.3000e-003	1.3000e-003		1.3000e-003	1.3000e-003	0.0000	18.6699	18.6699	3.6000e-004	3.4000e-004	18.7808
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**4.8500e-003**	**0.0441**	**0.0370**	**2.6000e-004**		**3.3400e-003**	**3.3400e-003**		**3.3400e-003**	**3.3400e-003**	**0.0000**	**47.9559**	**47.9559**	**9.2000e-004**	**8.8000e-004**	**48.2409**

Temecula Hospital SEIR - Operations - South Coast AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hospital	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Medical Office Building	274400	2.9600e-003	0.0269	0.0226	1.6000e-004		2.0400e-003	2.0400e-003		2.0400e-003	2.0400e-003	0.0000	29.2861	29.2861	5.6000e-004	5.4000e-004	29.4601
Medical Office Building	349860	1.8900e-003	0.0172	0.0144	1.0000e-004		1.3000e-003	1.3000e-003		1.3000e-003	1.3000e-003	0.0000	18.6699	18.6699	3.6000e-004	3.4000e-004	18.7808
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**4.8500e-003**	**0.0441**	**0.0370**	**2.6000e-004**		**3.3400e-003**	**3.3400e-003**		**3.3400e-003**	**3.3400e-003**	**0.0000**	**47.9559**	**47.9559**	**9.2000e-004**	**8.8000e-004**	**48.2409**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Enclosed Parking with Elevator	1.47968e+006	176.5181	0.0000	0.0000	176.5181
Hospital	2.19125e+006	522.8094	0.0000	0.0000	522.8094
Hospital	350600	41.8248	0.0000	0.0000	41.8248
Medical Office Building	735200	175.4111	0.0000	0.0000	175.4111
Medical Office Building	937380	111.8246	0.0000	0.0000	111.8246
Parking Lot	182700	21.7952	0.0000	0.0000	21.7952
Total		**1,050.1831**	**0.0000**	**0.0000**	**1,050.1831**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Enclosed Parking with Elevator	1.47968e+006	176.5181	0.0000	0.0000	176.5181
Hospital	2.19125e+006	522.8094	0.0000	0.0000	522.8094
Hospital	350600	41.8248	0.0000	0.0000	41.8248
Medical Office Building	735200	175.4111	0.0000	0.0000	175.4111
Medical Office Building	937380	111.8246	0.0000	0.0000	111.8246
Parking Lot	182700	21.7952	0.0000	0.0000	21.7952
Total		**1,050.1831**	**0.0000**	**0.0000**	**1,050.1831**

6.0 Area Detail

6.1 Mitigation Measures Area

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	2.2343	2.9000e-004	0.0319	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	0.0625	0.0625	1.6000e-004	0.0000	0.0665
Unmitigated	2.2343	2.9000e-004	0.0319	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	0.0625	0.0625	1.6000e-004	0.0000	0.0665

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2576					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.9737					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.9200e-003	2.9000e-004	0.0319	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	0.0625	0.0625	1.6000e-004	0.0000	0.0665
Total	**2.2343**	**2.9000e-004**	**0.0319**	**0.0000**		**1.1000e-004**	**1.1000e-004**		**1.1000e-004**	**1.1000e-004**	**0.0000**	**0.0625**	**0.0625**	**1.6000e-004**	**0.0000**	**0.0665**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2576					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.9737					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.9200e-003	2.9000e-004	0.0319	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	0.0625	0.0625	1.6000e-004	0.0000	0.0665
Total	**2.2343**	**2.9000e-004**	**0.0319**	**0.0000**		**1.1000e-004**	**1.1000e-004**		**1.1000e-004**	**1.1000e-004**	**0.0000**	**0.0625**	**0.0625**	**1.6000e-004**	**0.0000**	**0.0665**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	141.7250	2.1752	0.0514	211.4117
Unmitigated	141.7250	2.1752	0.0514	211.4117

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Hospital	33.8797 / 6.45328	71.9281	1.1040	0.0261	107.2954
Medical Office Building	32.8759 / 6.26208	69.7969	1.0713	0.0253	104.1163
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**141.7250**	**2.1752**	**0.0514**	**211.4117**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Hospital	33.8797 / 6.45328	71.9281	1.1040	0.0261	107.2954
Medical Office Building	32.8759 / 6.26208	69.7969	1.0713	0.0253	104.1163
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**141.7250**	**2.1752**	**0.0514**	**211.4117**

8.0 Waste Detail

8.1 Mitigation Measures Waste

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	1,166.3049	68.9266	0.0000	2,889.4710
Unmitigated	1,166.3049	68.9266	0.0000	2,889.4710

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Hospital	2916	591.9217	34.9816	0.0000	1,466.4608
Medical Office Building	2829.6	574.3832	33.9451	0.0000	1,423.0101
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**1,166.3049**	**68.9267**	**0.0000**	**2,889.4710**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Hospital	2916	591.9217	34.9816	0.0000	1,466.4608
Medical Office Building	2829.6	574.3832	33.9451	0.0000	1,423.0101
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**1,166.3049**	**68.9267**	**0.0000**	**2,889.4710**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
Boiler	4	128	46915	0	CNG

User Defined Equipment

Temecula Hospital SEIR - Operations - South Coast AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Boiler - CNG (0 - 2 MMBTU)	0.5060	2.2520	9.0152	0.0552		0.6991	0.6991		0.6991	0.6991	0.0000	10,014.4234	10,014.4234	0.1919	0.0000	10,019.2219
Total	**0.5060**	**2.2520**	**9.0152**	**0.0552**		**0.6991**	**0.6991**		**0.6991**	**0.6991**	**0.0000**	**10,014.4234**	**10,014.4234**	**0.1919**	**0.0000**	**10,019.2219**

11.0 Vegetation

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Temecula Hospital SEIR - Operations

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Hospital	20.00	1000sqft	0.46	20,000.00	0
Hospital	125.00	1000sqft	2.87	125,000.00	0
Hospital	125.00	1000sqft	2.87	125,000.00	0
Medical Office Building	102.00	1000sqft	2.34	102,000.00	0
Medical Office Building	80.00	1000sqft	1.84	80,000.00	0
Medical Office Building	80.00	1000sqft	1.84	80,000.00	0
Enclosed Parking with Elevator	680.00	Space	6.12	272,000.00	0
Parking Lot	1,305.00	Space	11.74	522,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2035
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	263	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - SCE GHG Efs from CAPCOA Guide 2022.1, Appendix C, Table E-4.4, for 2035: https://www.caleemod.com/documents/handbook/appendices/appendix_c.pdf

Land Use - Land Uses based on PD. Hospital = 20 tsf ED Expansion + 125 tsf Hospital Tower 2 + 125 tsf Hospital Tower 3. Medical Office = 102 tsf behavioral health (converted from 144 beds) + 80 tsf medical office + 80 tsf medical office. Parking from PD. Utility Plant (modeled as Warehouse in Construction runs) not included here b/c emissions associated with boilers only (thus a 14 tsf difference).

Construction Phase - Operational run only

Temecula Hospital SEIR - Operations - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Off-road Equipment - Operational run only

Off-road Equipment - Operational run only

Off-road Equipment - Operational run only

Off-road Equipment - Operational run only

Off-road Equipment - Operational run only

Off-road Equipment - Operational run only

Trips and VMT - Operational run only

On-road Fugitive Dust - Operational run only

Demolition - Operational run only

Grading - Operational run only

Architectural Coating - Operational run only

Vehicle Trips - Trip Rates based on PD. Hospital of 10.77 = 2907 ADT / 270 tsf; Medical Office of 22.59 = =5,916 ADT / 262 TSF. VMT per trip based on 25,950 VMT (Table 3.13-1 of this EIR) / 8,823 ADT. 100% primary trips because pass-by and diverted accounted for in VMT estimates.

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Area Coating - 100 g/l for non-res ext and interior and parking, based on SCAQMD Rule 1113, taken from caleemod2022 appendices

Energy Use - Natural gas energy for the hospital will be provided by the central utility, so Hospital NG zeroed out. All others based on default.

Water And Wastewater - default water and wastewater

Solid Waste - default solid waste

Area Mitigation - coatings per AQMD Rule

Fleet Mix -

Stationary Sources - Process Boilers - 4 NG boilers, 128 MMBtu per day, 46,915 MMBtu per year

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	0.00
tblArchitecturalCoating	EF_Parking	100.00	0.00
tblArchitecturalCoating	EF_Residential_Exterior	50.00	0.00

Temecula Hospital SEIR - Operations - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblArchitecturalCoating	EF_Residential_Interior	50.00	0.00
tblConstructionPhase	NumDays	35.00	0.00
tblConstructionPhase	NumDays	500.00	0.00
tblConstructionPhase	NumDays	30.00	0.00
tblConstructionPhase	NumDays	45.00	0.00
tblConstructionPhase	NumDays	35.00	0.00
tblConstructionPhase	NumDays	20.00	0.00
tblEnergyUse	NT24NG	6.03	0.00
tblEnergyUse	T24NG	68.80	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.033	0

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblProjectCharacteristics	CO2IntensityFactor	390.98	263
tblProjectCharacteristics	N2OIntensityFactor	0.004	0
tblStationaryBoilersUse	AnnualHeatInput	0.00	46,915.00
tblStationaryBoilersUse	DailyHeatInput	0.00	128.00
tblStationaryBoilersUse	NumberOfEquipment	0.00	4.00
tblTripsAndVMT	VendorTripNumber	217.00	0.00
tblTripsAndVMT	WorkerTripNumber	504.00	0.00
tblTripsAndVMT	WorkerTripNumber	101.00	0.00
tblVehicleTrips	CC_TL	8.40	2.94
tblVehicleTrips	CC_TL	8.40	2.94
tblVehicleTrips	CNW_TL	6.90	2.94
tblVehicleTrips	CNW_TL	6.90	2.94
tblVehicleTrips	CW_TL	16.60	2.94
tblVehicleTrips	CW_TL	16.60	2.94
tblVehicleTrips	DV_TP	25.00	0.00
tblVehicleTrips	DV_TP	30.00	0.00
tblVehicleTrips	PB_TP	2.00	0.00
tblVehicleTrips	PB_TP	10.00	0.00
tblVehicleTrips	PR_TP	73.00	100.00
tblVehicleTrips	PR_TP	60.00	100.00
tblVehicleTrips	ST_TR	7.72	10.77
tblVehicleTrips	ST_TR	8.57	22.59
tblVehicleTrips	SU_TR	6.77	10.77
tblVehicleTrips	SU_TR	1.42	22.59
tblVehicleTrips	WD_TR	10.72	10.77
tblVehicleTrips	WD_TR	34.80	22.59

2.0 Emissions Summary

Temecula Hospital SEIR - Operations - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2025	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2025	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Temecula Hospital SEIR - Operations - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	12.2498	2.3000e-003	0.2555	2.0000e-005		9.1000e-004	9.1000e-004		9.1000e-004	9.1000e-004		0.5509	0.5509	1.4200e-003		0.5863
Energy	0.0266	0.2414	0.2028	1.4500e-003		0.0183	0.0183		0.0183	0.0183		289.6567	289.6567	5.5500e-003	5.3100e-003	291.3780
Mobile	12.2075	8.7933	85.0942	0.1561	19.9048	0.0948	19.9996	5.3048	0.0883	5.3931		15,927.8533	15,927.8533	1.3044	0.8741	16,220.9488
Stationary	2.7608	12.2882	49.1930	0.3012		3.8150	3.8150		3.8150	3.8150		60,236.3233	60,236.3233	1.1545		60,265.1865
Total	**27.2448**	**21.3252**	**134.7455**	**0.4587**	**19.9048**	**3.9290**	**23.8338**	**5.3048**	**3.9225**	**9.2273**		**76,454.3842**	**76,454.3842**	**2.4659**	**0.8794**	**76,778.0997**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	12.2498	2.3000e-003	0.2555	2.0000e-005		9.1000e-004	9.1000e-004		9.1000e-004	9.1000e-004		0.5509	0.5509	1.4200e-003		0.5863
Energy	0.0266	0.2414	0.2028	1.4500e-003		0.0183	0.0183		0.0183	0.0183		289.6567	289.6567	5.5500e-003	5.3100e-003	291.3780
Mobile	12.2075	8.7933	85.0942	0.1561	19.9048	0.0948	19.9996	5.3048	0.0883	5.3931		15,927.8533	15,927.8533	1.3044	0.8741	16,220.9488
Stationary	2.7608	12.2882	49.1930	0.3012		3.8150	3.8150		3.8150	3.8150		60,236.3233	60,236.3233	1.1545		60,265.1865
Total	**27.2448**	**21.3252**	**134.7455**	**0.4587**	**19.9048**	**3.9290**	**23.8338**	**5.3048**	**3.9225**	**9.2273**		**76,454.3842**	**76,454.3842**	**2.4659**	**0.8794**	**76,778.0997**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2023	12/30/2022	5	0	
2	Site Preparation	Site Preparation	2/11/2023	2/10/2023	5	0	
3	Grading	Grading	3/11/2023	3/10/2023	5	0	
4	Building Construction	Building Construction	5/13/2023	5/12/2023	5	0	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5	Paving	Paving	4/12/2025	4/11/2025	5	0	
6	Architectural Coating	Architectural Coating	5/31/2025	5/30/2025	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 17.86

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 798,000; Non-Residential Outdoor: 266,000; Striped Parking Area: 47,640 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	0	6.00	78	0.48
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Building Construction	Cranes	0	7.00	231	0.29
Demolition	Excavators	0	8.00	158	0.38
Grading	Excavators	0	8.00	158	0.38
Building Construction	Forklifts	0	8.00	89	0.20
Building Construction	Generator Sets	0	8.00	84	0.74
Grading	Graders	0	8.00	187	0.41
Paving	Pavers	0	8.00	130	0.42
Paving	Paving Equipment	0	8.00	132	0.36
Paving	Rollers	0	8.00	80	0.38
Demolition	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Scrapers	0	8.00	367	0.48
Building Construction	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Building Construction	Welders	0	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	0	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	0	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	0	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	0	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	0	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.3 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Temecula Hospital SEIR - Operations - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Temecula Hospital SEIR - Operations - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Temecula Hospital SEIR - Operations - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Temecula Hospital SEIR - Operations - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Temecula Hospital SEIR - Operations - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Temecula Hospital SEIR - Operations - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Temecula Hospital SEIR - Operations - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Temecula Hospital SEIR - Operations - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Temecula Hospital SEIR - Operations - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Architectural Coating - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Architectural Coating - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	12.2075	8.7933	85.0942	0.1561	19.9048	0.0948	19.9996	5.3048	0.0883	5.3931		15,927.8533	15,927.8533	1.3044	0.8741	16,220.9488
Unmitigated	12.2075	8.7933	85.0942	0.1561	19.9048	0.0948	19.9996	5.3048	0.0883	5.3931		15,927.8533	15,927.8533	1.3044	0.8741	16,220.9488

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Enclosed Parking with Elevator	0.00	0.00	0.00		
Hospital	215.40	215.40	215.40	230,512	230,512
Hospital	1,346.25	1,346.25	1346.25	1,440,703	1,440,703
Hospital	1,346.25	1,346.25	1346.25	1,440,703	1,440,703
Medical Office Building	2,304.18	2,304.18	2304.18	2,465,841	2,465,841
Medical Office Building	1,807.20	1,807.20	1807.20	1,933,993	1,933,993
Medical Office Building	1,807.20	1,807.20	1807.20	1,933,993	1,933,993
Parking Lot	0.00	0.00	0.00		
Total	8,826.48	8,826.48	8,826.48	9,445,746	9,445,746

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Enclosed Parking with Elevator	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Hospital	2.94	2.94	2.94	64.90	16.10	19.00	100	0	0
Hospital	2.94	2.94	2.94	64.90	16.10	19.00	100	0	0
Hospital	2.94	2.94	2.94	64.90	16.10	19.00	100	0	0

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Medical Office Building	2.94	2.94	2.94	29.60	51.40	19.00	100	0	0
Medical Office Building	2.94	2.94	2.94	29.60	51.40	19.00	100	0	0
Medical Office Building	2.94	2.94	2.94	29.60	51.40	19.00	100	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Enclosed Parking with Elevator	0.533516	0.066498	0.189801	0.125856	0.024330	0.007176	0.012787	0.008479	0.000809	0.000452	0.026193	0.000781	0.003322
Hospital	0.533516	0.066498	0.189801	0.125856	0.024330	0.007176	0.012787	0.008479	0.000809	0.000452	0.026193	0.000781	0.003322
Medical Office Building	0.533516	0.066498	0.189801	0.125856	0.024330	0.007176	0.012787	0.008479	0.000809	0.000452	0.026193	0.000781	0.003322
Parking Lot	0.533516	0.066498	0.189801	0.125856	0.024330	0.007176	0.012787	0.008479	0.000809	0.000452	0.026193	0.000781	0.003322

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0266	0.2414	0.2028	1.4500e-003		0.0183	0.0183		0.0183	0.0183		289.6567	289.6567	5.5500e-003	5.3100e-003	291.3780
NaturalGas Unmitigated	0.0266	0.2414	0.2028	1.4500e-003		0.0183	0.0183		0.0183	0.0183		289.6567	289.6567	5.5500e-003	5.3100e-003	291.3780

Temecula Hospital SEIR - Operations - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Hospital	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Medical Office Building	751.781	0.0162	0.1474	0.1238	8.8000e-004		0.0112	0.0112		0.0112	0.0112		176.8896	176.8896	3.3900e-003	3.2400e-003	177.9408
Medical Office Building	958.521	0.0103	0.0940	0.0789	5.6000e-004		7.1400e-003	7.1400e-003		7.1400e-003	7.1400e-003		112.7671	112.7671	2.1600e-003	2.0700e-003	113.4372
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0266**	**0.2414**	**0.2028**	**1.4400e-003**		**0.0183**	**0.0183**		**0.0183**	**0.0183**		**289.6567**	**289.6567**	**5.5500e-003**	**5.3100e-003**	**291.3780**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Hospital	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0.751781	0.0162	0.1474	0.1238	8.8000e-004		0.0112	0.0112		0.0112	0.0112		176.8896	176.8896	3.3900e-003	3.2400e-003	177.9408
Medical Office Building	0.958521	0.0103	0.0940	0.0789	5.6000e-004		7.1400e-003	7.1400e-003		7.1400e-003	7.1400e-003		112.7671	112.7671	2.1600e-003	2.0700e-003	113.4372
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0266**	**0.2414**	**0.2028**	**1.4400e-003**		**0.0183**	**0.0183**		**0.0183**	**0.0183**		**289.6567**	**289.6567**	**5.5500e-003**	**5.3100e-003**	**291.3780**

6.0 Area Detail

6.1 Mitigation Measures Area

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	12.2498	2.3000e-003	0.2555	2.0000e-005		9.1000e-004	9.1000e-004		9.1000e-004	9.1000e-004		0.5509	0.5509	1.4200e-003		0.5863
Unmitigated	12.2498	2.3000e-003	0.2555	2.0000e-005		9.1000e-004	9.1000e-004		9.1000e-004	9.1000e-004		0.5509	0.5509	1.4200e-003		0.5863

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.4116					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	10.8148					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0234	2.3000e-003	0.2555	2.0000e-005		9.1000e-004	9.1000e-004		9.1000e-004	9.1000e-004		0.5509	0.5509	1.4200e-003		0.5863
Total	**12.2498**	**2.3000e-003**	**0.2555**	**2.0000e-005**		**9.1000e-004**	**9.1000e-004**		**9.1000e-004**	**9.1000e-004**		**0.5509**	**0.5509**	**1.4200e-003**		**0.5863**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.4116					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	10.8148					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0234	2.3000e-003	0.2555	2.0000e-005		9.1000e-004	9.1000e-004		9.1000e-004	9.1000e-004		0.5509	0.5509	1.4200e-003		0.5863
Total	**12.2498**	**2.3000e-003**	**0.2555**	**2.0000e-005**		**9.1000e-004**	**9.1000e-004**		**9.1000e-004**	**9.1000e-004**		**0.5509**	**0.5509**	**1.4200e-003**		**0.5863**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
Boiler	4	128	46915	0	CNG

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Boiler - CNG (0 - 2 MMBTU)	2.7608	12.2882	49.1930	0.3012		3.8150	3.8150		3.8150	3.8150		60,236.3233	60,236.3233	1.1545		60,265.1865
Total	**2.7608**	**12.2882**	**49.1930**	**0.3012**		**3.8150**	**3.8150**		**3.8150**	**3.8150**		**60,236.3233**	**60,236.3233**	**1.1545**		**60,265.1865**

11.0 Vegetation

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Temecula Hospital SEIR - Operations

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Hospital	20.00	1000sqft	0.46	20,000.00	0
Hospital	125.00	1000sqft	2.87	125,000.00	0
Hospital	125.00	1000sqft	2.87	125,000.00	0
Medical Office Building	102.00	1000sqft	2.34	102,000.00	0
Medical Office Building	80.00	1000sqft	1.84	80,000.00	0
Medical Office Building	80.00	1000sqft	1.84	80,000.00	0
Enclosed Parking with Elevator	680.00	Space	6.12	272,000.00	0
Parking Lot	1,305.00	Space	11.74	522,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2035
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	263	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - SCE GHG Efs from CAPCOA Guide 2022.1, Appendix C, Table E-4.4, for 2035: https://www.caleemod.com/documents/handbook/appendices/appendix_c.pdf

Land Use - Land Uses based on PD. Hospital = 20 tsf ED Expansion + 125 tsf Hospital Tower 2 + 125 tsf Hospital Tower 3. Medical Office = 102 tsf behavioral health (converted from 144 beds) + 80 tsf medical office + 80 tsf medical office. Parking from PD. Utility Plant (modeled as Warehouse in Construction runs) not included here b/c emissions associated with boilers only (thus a 14 tsf difference).

Construction Phase - Operational run only

Temecula Hospital SEIR - Operations - South Coast AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Off-road Equipment - Operational run only

Off-road Equipment - Operational run only

Off-road Equipment - Operational run only

Off-road Equipment - Operational run only

Off-road Equipment - Operational run only

Off-road Equipment - Operational run only

Trips and VMT - Operational run only

On-road Fugitive Dust - Operational run only

Demolition - Operational run only

Grading - Operational run only

Architectural Coating - Operational run only

Vehicle Trips - Trip Rates based on PD. Hospital of 10.77 = 2907 ADT / 270 tsf; Medical Office of 22.59 = =5,916 ADT / 262 TSF. VMT per trip based on 25,950 VMT (Table 3.13-1 of this EIR) / 8,823 ADT. 100% primary trips because pass-by and diverted accounted for in VMT estimates.

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Area Coating - 100 g/l for non-res ext and interior and parking, based on SCAQMD Rule 1113, taken from caleemod2022 appendices

Energy Use - Natural gas energy for the hospital will be provided by the central utility, so Hospital NG zeroed out. All others based on default.

Water And Wastewater - default water and wastewater

Solid Waste - default solid waste

Area Mitigation - coatings per AQMD Rule

Fleet Mix -

Stationary Sources - Process Boilers - 4 NG boilers, 128 MMBtu per day, 46,915 MMBtu per year

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	0.00
tblArchitecturalCoating	EF_Parking	100.00	0.00
tblArchitecturalCoating	EF_Residential_Exterior	50.00	0.00

Temecula Hospital SEIR - Operations - South Coast AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblArchitecturalCoating	EF_Residential_Interior	50.00	0.00
tblConstructionPhase	NumDays	35.00	0.00
tblConstructionPhase	NumDays	500.00	0.00
tblConstructionPhase	NumDays	30.00	0.00
tblConstructionPhase	NumDays	45.00	0.00
tblConstructionPhase	NumDays	35.00	0.00
tblConstructionPhase	NumDays	20.00	0.00
tblEnergyUse	NT24NG	6.03	0.00
tblEnergyUse	T24NG	68.80	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.033	0

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblProjectCharacteristics	CO2IntensityFactor	390.98	263
tblProjectCharacteristics	N2OIntensityFactor	0.004	0
tblStationaryBoilersUse	AnnualHeatInput	0.00	46,915.00
tblStationaryBoilersUse	DailyHeatInput	0.00	128.00
tblStationaryBoilersUse	NumberOfEquipment	0.00	4.00
tblTripsAndVMT	VendorTripNumber	217.00	0.00
tblTripsAndVMT	WorkerTripNumber	504.00	0.00
tblTripsAndVMT	WorkerTripNumber	101.00	0.00
tblVehicleTrips	CC_TL	8.40	2.94
tblVehicleTrips	CC_TL	8.40	2.94
tblVehicleTrips	CNW_TL	6.90	2.94
tblVehicleTrips	CNW_TL	6.90	2.94
tblVehicleTrips	CW_TL	16.60	2.94
tblVehicleTrips	CW_TL	16.60	2.94
tblVehicleTrips	DV_TP	25.00	0.00
tblVehicleTrips	DV_TP	30.00	0.00
tblVehicleTrips	PB_TP	2.00	0.00
tblVehicleTrips	PB_TP	10.00	0.00
tblVehicleTrips	PR_TP	73.00	100.00
tblVehicleTrips	PR_TP	60.00	100.00
tblVehicleTrips	ST_TR	7.72	10.77
tblVehicleTrips	ST_TR	8.57	22.59
tblVehicleTrips	SU_TR	6.77	10.77
tblVehicleTrips	SU_TR	1.42	22.59
tblVehicleTrips	WD_TR	10.72	10.77
tblVehicleTrips	WD_TR	34.80	22.59

2.0 Emissions Summary

Temecula Hospital SEIR - Operations - South Coast AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2025	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2025	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Temecula Hospital SEIR - Operations - South Coast AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	12.2498	2.3000e-003	0.2555	2.0000e-005		9.1000e-004	9.1000e-004		9.1000e-004	9.1000e-004		0.5509	0.5509	1.4200e-003		0.5863
Energy	0.0266	0.2414	0.2028	1.4500e-003		0.0183	0.0183		0.0183	0.0183		289.6567	289.6567	5.5500e-003	5.3100e-003	291.3780
Mobile	11.3475	9.4523	87.0788	0.1493	19.9048	0.0949	19.9997	5.3048	0.0884	5.3932		15,244.7433	15,244.7433	1.3724	0.9107	15,550.4540
Stationary	2.7608	12.2882	49.1930	0.3012		3.8150	3.8150		3.8150	3.8150		60,236.3233	60,236.3233	1.1545		60,265.1865
Total	**26.3848**	**21.9842**	**136.7301**	**0.4520**	**19.9048**	**3.9291**	**23.8340**	**5.3048**	**3.9226**	**9.2274**		**75,771.2742**	**75,771.2742**	**2.5339**	**0.9161**	**76,107.6049**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	12.2498	2.3000e-003	0.2555	2.0000e-005		9.1000e-004	9.1000e-004		9.1000e-004	9.1000e-004		0.5509	0.5509	1.4200e-003		0.5863
Energy	0.0266	0.2414	0.2028	1.4500e-003		0.0183	0.0183		0.0183	0.0183		289.6567	289.6567	5.5500e-003	5.3100e-003	291.3780
Mobile	11.3475	9.4523	87.0788	0.1493	19.9048	0.0949	19.9997	5.3048	0.0884	5.3932		15,244.7433	15,244.7433	1.3724	0.9107	15,550.4540
Stationary	2.7608	12.2882	49.1930	0.3012		3.8150	3.8150		3.8150	3.8150		60,236.3233	60,236.3233	1.1545		60,265.1865
Total	**26.3848**	**21.9842**	**136.7301**	**0.4520**	**19.9048**	**3.9291**	**23.8340**	**5.3048**	**3.9226**	**9.2274**		**75,771.2742**	**75,771.2742**	**2.5339**	**0.9161**	**76,107.6049**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2023	12/30/2022	5	0	
2	Site Preparation	Site Preparation	2/11/2023	2/10/2023	5	0	
3	Grading	Grading	3/11/2023	3/10/2023	5	0	
4	Building Construction	Building Construction	5/13/2023	5/12/2023	5	0	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5	Paving	Paving	4/12/2025	4/11/2025	5	0	
6	Architectural Coating	Architectural Coating	5/31/2025	5/30/2025	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 17.86

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 798,000; Non-Residential Outdoor: 266,000; Striped Parking Area: 47,640 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	0	6.00	78	0.48
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Building Construction	Cranes	0	7.00	231	0.29
Demolition	Excavators	0	8.00	158	0.38
Grading	Excavators	0	8.00	158	0.38
Building Construction	Forklifts	0	8.00	89	0.20
Building Construction	Generator Sets	0	8.00	84	0.74
Grading	Graders	0	8.00	187	0.41
Paving	Pavers	0	8.00	130	0.42
Paving	Paving Equipment	0	8.00	132	0.36
Paving	Rollers	0	8.00	80	0.38
Demolition	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Scrapers	0	8.00	367	0.48
Building Construction	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Building Construction	Welders	0	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	0	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	0	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	0	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	0	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	0	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.3 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Temecula Hospital SEIR - Operations - South Coast AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Temecula Hospital SEIR - Operations - South Coast AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Temecula Hospital SEIR - Operations - South Coast AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Architectural Coating - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Architectural Coating - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	11.3475	9.4523	87.0788	0.1493	19.9048	0.0949	19.9997	5.3048	0.0884	5.3932		15,244.7433	15,244.7433	1.3724	0.9107	15,550.4540
Unmitigated	11.3475	9.4523	87.0788	0.1493	19.9048	0.0949	19.9997	5.3048	0.0884	5.3932		15,244.7433	15,244.7433	1.3724	0.9107	15,550.4540

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Enclosed Parking with Elevator	0.00	0.00	0.00		
Hospital	215.40	215.40	215.40	230,512	230,512
Hospital	1,346.25	1,346.25	1346.25	1,440,703	1,440,703
Hospital	1,346.25	1,346.25	1346.25	1,440,703	1,440,703
Medical Office Building	2,304.18	2,304.18	2304.18	2,465,841	2,465,841
Medical Office Building	1,807.20	1,807.20	1807.20	1,933,993	1,933,993
Medical Office Building	1,807.20	1,807.20	1807.20	1,933,993	1,933,993
Parking Lot	0.00	0.00	0.00		
Total	8,826.48	8,826.48	8,826.48	9,445,746	9,445,746

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Enclosed Parking with Elevator	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Hospital	2.94	2.94	2.94	64.90	16.10	19.00	100	0	0
Hospital	2.94	2.94	2.94	64.90	16.10	19.00	100	0	0
Hospital	2.94	2.94	2.94	64.90	16.10	19.00	100	0	0

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Medical Office Building	2.94	2.94	2.94	29.60	51.40	19.00	100	0	0
Medical Office Building	2.94	2.94	2.94	29.60	51.40	19.00	100	0	0
Medical Office Building	2.94	2.94	2.94	29.60	51.40	19.00	100	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Enclosed Parking with Elevator	0.533516	0.066498	0.189801	0.125856	0.024330	0.007176	0.012787	0.008479	0.000809	0.000452	0.026193	0.000781	0.003322
Hospital	0.533516	0.066498	0.189801	0.125856	0.024330	0.007176	0.012787	0.008479	0.000809	0.000452	0.026193	0.000781	0.003322
Medical Office Building	0.533516	0.066498	0.189801	0.125856	0.024330	0.007176	0.012787	0.008479	0.000809	0.000452	0.026193	0.000781	0.003322
Parking Lot	0.533516	0.066498	0.189801	0.125856	0.024330	0.007176	0.012787	0.008479	0.000809	0.000452	0.026193	0.000781	0.003322

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0266	0.2414	0.2028	1.4500e-003		0.0183	0.0183		0.0183	0.0183		289.6567	289.6567	5.5500e-003	5.3100e-003	291.3780
NaturalGas Unmitigated	0.0266	0.2414	0.2028	1.4500e-003		0.0183	0.0183		0.0183	0.0183		289.6567	289.6567	5.5500e-003	5.3100e-003	291.3780

Temecula Hospital SEIR - Operations - South Coast AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Hospital	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Medical Office Building	751.781	0.0162	0.1474	0.1238	8.8000e-004		0.0112	0.0112		0.0112	0.0112		176.8896	176.8896	3.3900e-003	3.2400e-003	177.9408
Medical Office Building	958.521	0.0103	0.0940	0.0789	5.6000e-004		7.1400e-003	7.1400e-003		7.1400e-003	7.1400e-003		112.7671	112.7671	2.1600e-003	2.0700e-003	113.4372
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0266**	**0.2414**	**0.2028**	**1.4400e-003**		**0.0183**	**0.0183**		**0.0183**	**0.0183**		**289.6567**	**289.6567**	**5.5500e-003**	**5.3100e-003**	**291.3780**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Hospital	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0.751781	0.0162	0.1474	0.1238	8.8000e-004		0.0112	0.0112		0.0112	0.0112		176.8896	176.8896	3.3900e-003	3.2400e-003	177.9408
Medical Office Building	0.958521	0.0103	0.0940	0.0789	5.6000e-004		7.1400e-003	7.1400e-003		7.1400e-003	7.1400e-003		112.7671	112.7671	2.1600e-003	2.0700e-003	113.4372
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0266**	**0.2414**	**0.2028**	**1.4400e-003**		**0.0183**	**0.0183**		**0.0183**	**0.0183**		**289.6567**	**289.6567**	**5.5500e-003**	**5.3100e-003**	**291.3780**

6.0 Area Detail

6.1 Mitigation Measures Area

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	12.2498	2.3000e-003	0.2555	2.0000e-005		9.1000e-004	9.1000e-004		9.1000e-004	9.1000e-004		0.5509	0.5509	1.4200e-003		0.5863
Unmitigated	12.2498	2.3000e-003	0.2555	2.0000e-005		9.1000e-004	9.1000e-004		9.1000e-004	9.1000e-004		0.5509	0.5509	1.4200e-003		0.5863

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.4116					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	10.8148					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0234	2.3000e-003	0.2555	2.0000e-005		9.1000e-004	9.1000e-004		9.1000e-004	9.1000e-004		0.5509	0.5509	1.4200e-003		0.5863
Total	**12.2498**	**2.3000e-003**	**0.2555**	**2.0000e-005**		**9.1000e-004**	**9.1000e-004**		**9.1000e-004**	**9.1000e-004**		**0.5509**	**0.5509**	**1.4200e-003**		**0.5863**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.4116					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	10.8148					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0234	2.3000e-003	0.2555	2.0000e-005		9.1000e-004	9.1000e-004		9.1000e-004	9.1000e-004		0.5509	0.5509	1.4200e-003		0.5863
Total	**12.2498**	**2.3000e-003**	**0.2555**	**2.0000e-005**		**9.1000e-004**	**9.1000e-004**		**9.1000e-004**	**9.1000e-004**		**0.5509**	**0.5509**	**1.4200e-003**		**0.5863**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
Boiler	4	128	46915	0	CNG

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Boiler - CNG (0 - 2 MMBTU)	2.7608	12.2882	49.1930	0.3012		3.8150	3.8150		3.8150	3.8150		60,236.3233	60,236.3233	1.1545		60,265.1865
Total	**2.7608**	**12.2882**	**49.1930**	**0.3012**		**3.8150**	**3.8150**		**3.8150**	**3.8150**		**60,236.3233**	**60,236.3233**	**1.1545**		**60,265.1865**

11.0 Vegetation

Energy Calculations Summary

Operational Fuel Use Summary

Fuel Type	Fleet Mix (%)	Gallons per Mile	Annual VMT	Gallons
Gasoline	98.95%	0.03	9,445,746	284,288
Diesel	1.05%	0.15		14,669

Fuel Type	Gallons
Gasoline	284,288
Diesel	14,669

Notes:

1. Fleet mix calculated from CalEEMod default values.
2. Gallons per mile calculated from EMFAC 2021.
3. Annual VMT obtained from CalEEMod output file.

Construction Energy Summary

Construction Fuel Usage Summary

		Diesel	Diesel	Diesel	Gasoline
Phase	**Construction Year**	**Off-road Equipment (gallons)**	**On-road (gallons)**	**Off-road & On-road (gallons)**	**On-road (gallons)**
2	2023	20,068	13,853	33,920	15,682
3	2023	28,459	21,101	49,559	28,443
4	2026	28,459	27,219	55,677	35,535
	Sub Total	76,985	62,172	139,157	79,660

Total Gasoline	**79,660**	**gallons**
Total Diesel	**139,157**	**gallons**

Operational Energy Summary

Land Use	Electricity kWh/year	Electricity MWh/year	Natural Gas kBTU/year	Natural Gas MMBTU/year	Natural Gas therm/year
Enclosed Parking with Elevator	1,479,680	1,480			
Hospital	2,541,850	2,542	46,915,000	46,915	469,150
Medical Office Buildings and Behavior Health	1,672,580	1,673	624,260	624	6,243
Parking Lot	182,700	183			
TOTAL	5,876,810	5,877	47,539,260	47,539	475,393

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Air District
Region: South Coast AQMD
Calendar Year: 2038
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	CalYr	VehClass	MdlYr	Speed miles/hr	Fuel	Population vehicles	VMT miles/day	Trips trips/day	Gasoline Fuel Consumption 1,000 gallons/day	Diesel Fuel Consumption 1,000 gallons/day
South Coas	2038	All Other Buses	Aggregate	Aggregate	Diesel	2373.795595	122669.3293	21126.78079		11.9444074
South Coas	2038	LDA	Aggregate	Aggregate	Gasoline	4983579.447	195796483.2	23227675.01	5499.321314	
South Coas	2038	LDA	Aggregate	Aggregate	Diesel	3996.486854	133238.1971	17555.13458		2.603572561
South Coas	2038	LDT1	Aggregate	Aggregate	Gasoline	435751.3399	15824933.42	1949830.184	529.5589102	
South Coas	2038	LDT1	Aggregate	Aggregate	Diesel	3.997342681	161.7655018	18.99699022		0.005642983
South Coas	2038	LDT2	Aggregate	Aggregate	Gasoline	3085051.749	120423414.2	14356820.73	4088.881556	
South Coas	2038	LDT2	Aggregate	Aggregate	Diesel	11426.96417	452561.0048	53672.15591		11.82708323
South Coas	2038	LHD1	Aggregate	Aggregate	Gasoline	169785.9202	6064534.284	2529557.231	372.5267012	
South Coas	2038	LHD1	Aggregate	Aggregate	Diesel	118612.9054	4242778.274	1492001.134		197.5079375
South Coas	2038	LHD2	Aggregate	Aggregate	Gasoline	24325.62623	820428.4763	362415.5856	57.33397024	
South Coas	2038	LHD2	Aggregate	Aggregate	Diesel	56420.58175	1956207.954	709699.9413		106.5818466
South Coas	2038	MCY	Aggregate	Aggregate	Gasoline	299894.6114	1765166.959	599789.2228	41.60491256	
South Coas	2038	MDV	Aggregate	Aggregate	Gasoline	1811265.406	67464339.61	8353539.372		2796.058848
South Coas	2038	MDV	Aggregate	Aggregate	Diesel	20225.14858	745881.5592	93046.9801	25.78161316	
South Coas	2038	MH	Aggregate	Aggregate	Gasoline	22062.32618	230986.8684	2207.115111		47.50495825
South Coas	2038	MH	Aggregate	Aggregate	Diesel	13411.69107	126598.8808	1341.169107	12.57997946	
South Coas	2038	Motor Coach	Aggregate	Aggregate	Diesel	998.0325313	123675.6622	22934.78757		19.69607598
South Coas	2038	OBUS	Aggregate	Aggregate	Gasoline	3331.379477	98477.58973	66654.24057	17.46898607	
South Coas	2038	PTO	Aggregate	Aggregate	Diesel	0	205724.0627	0		36.53446422
South Coas	2038	SBUS	Aggregate	Aggregate	Gasoline	2620.415665	114286.9219	10481.66266	12.1518008	
South Coas	2038	SBUS	Aggregate	Aggregate	Diesel	1481.630316	30843.40251	21454.00698		3.874007786
South Coas	2038	T6 CAIRP heavy	Aggregate	Aggregate	Diesel	447.1685398	89608.94038	10275.93304	7.829866436	
South Coas	2038	T6 CAIRP small	Aggregate	Aggregate	Diesel	303.1310821	15871.24641	6965.952267		1.584339704
South Coas	2038	T6 instate heavy	Aggregate	Aggregate	Diesel	21651.76707	962443.4691	264422.9123	99.37259071	
South Coas	2038	T6 instate small	Aggregate	Aggregate	Diesel	80762.97418	2899161.073	1022390.834		303.9794568
South Coas	2038	T6 OOS heavy	Aggregate	Aggregate	Diesel	274.6659654	75540.4518	6311.823886	6.31916592	
South Coas	2038	T6 OOS small	Aggregate	Aggregate	Diesel	309.705182	17262.9597	7117.025083		1.602975339
South Coas	2038	T6 Public	Aggregate	Aggregate	Diesel	4955.481929	189286.8985	25421.6223	20.45436997	
South Coas	2038	T6 Utility	Aggregate	Aggregate	Diesel	909.398226	36775.83091	11640.29729		3.725733829
South Coas	2038	T6TS	Aggregate	Aggregate	Gasoline	15558.97413	712513.9457	311303.9544	123.4041762	
South Coas	2038	T7 CAIRP	Aggregate	Aggregate	Diesel	16195.52703	3387202.405	372173.2111		457.5455142
South Coas	2038	T7 NNOOS	Aggregate	Aggregate	Diesel	17415.37477	5046523.419	400205.3121	647.6405156	
South Coas	2038	T7 NOOS	Aggregate	Aggregate	Diesel	7531.454828	1832588.858	173072.832		238.0548035
South Coas	2038	T7 POLA	Aggregate	Aggregate	Diesel	14453.67086	2596571.401	236462.0552	375.7141873	
South Coas	2038	T7 Public	Aggregate	Aggregate	Diesel	3210.359082	124151.1844	16469.14209		20.02983789
South Coas	2038	T7 Single	Aggregate	Aggregate	Diesel	21024.50297	960952.7775	198050.8179	148.518673	
South Coas	2038	T7 SWCV	Aggregate	Aggregate	Diesel	484.488773	31454.56034	2228.648356		11.6411988
South Coas	2038	T7 Tractor	Aggregate	Aggregate	Diesel	40554.54072	2591592.364	589257.4766	365.7551374	
South Coas	2038	T7 Utility	Aggregate	Aggregate	Diesel	654.6199847	26640.65903	8379.135804		4.069428932
South Coas	2038	T7IS	Aggregate	Aggregate	Gasoline	20.28029796	2298.886213	405.7682015	0.453529846	
South Coas	2038	UBUS	Aggregate	Aggregate	Gasoline	721.1641875	81746.18504	2884.65675		7.634492666
									12452.67	**4284.01**

TOTAL	438,423,579		26.2
Total (Gas)	409,399,611		32.9
Total (Diesel)	29,023,969		6.8

Annual VMT
9,445,746

	Mix (%)	Miles	Gallons
Gas	98.9%	9,346,367	284,288
Diesel	1.1%	99,379	14,669

Construction Fuel Use

Phase 2 Construction Offroad Equipment (2023)

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor	Number of days	Average Daily Factor	Diesel Fuel Usage
Site Preparation	Rubber Tired Dozers	3.0	8.00	247.0	0.40	10	0.6	711
Site Preparation	Tractors/Loaders/Backhoes	4.0	8.00	97.0	0.37	10	0.6	345
Grading	Excavators	1.0	8.00	158.0	0.38	20	0.6	288
Grading	Graders	1.0	8.00	187.0	0.41	20	0.6	368
Grading	Rubber Tired Dozers	1.0	8.00	247.0	0.40	20	0.6	474
Grading	Tractors/Loaders/Backhoes	3.0	8.00	97.0	0.37	20	0.6	517
Building Construction	Cranes	1.0	7.00	231.0	0.29	230	0.6	3,236
Building Construction	Forklifts	3.0	8.00	89.0	0.20	230	0.6	2,948
Building Construction	Generator Sets	1.0	8.00	84.0	0.74	230	0.6	3,431
Building Construction	Tractors/Loaders/Backhoes	3.0	7.00	97.0	0.37	230	0.6	5,200
Building Construction	Welders	1.0	8.00	46.0	0.45	230	0.6	1,143
Paving	Pavers	2.0	8.00	130.0	0.42	20	0.6	524
Paving	Paving Equipment	2.0	8.00	132.0	0.36	20	0.6	456
Paving	Rollers	2.0	8.00	80.0	0.38	20	0.6	292
Architectural Coating	Air Compressors	1.0	6.00	78.0	0.48	20	0.6	135
							Sub TOTAL	**20,068**

Phase 3 Construction Offroad Equipment (2023)

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor	Number of days	Average Daily Factor	Diesel Fuel Usage
Site Preparation	Rubber Tired Dozers	3.0	8.00	247.0	0.40	10	0.6	711
Site Preparation	Tractors/Loaders/Backhoes	4.0	8.00	97.0	0.37	10	0.6	345
Grading	Excavators	2.0	8.00	158.0	0.38	30	0.6	865
Grading	Graders	1.0	8.00	187.0	0.41	30	0.6	552
Grading	Rubber Tired Dozers	1.0	8.00	247.0	0.40	30	0.6	711
Grading	Scrapers	2.0	8.00	367.0	0.48	30	0.6	2,537
Grading	Tractors/Loaders/Backhoes	2.0	8.00	97.0	0.37	30	0.6	517
Building Construction	Cranes	1.0	7.00	231.0	0.29	300	0.6	4,220
Building Construction	Forklifts	3.0	8.00	89.0	0.20	300	0.6	3,845
Building Construction	Generator Sets	1.0	8.00	84.0	0.74	300	0.6	4,476
Building Construction	Tractors/Loaders/Backhoes	3.0	7.00	97.0	0.37	300	0.6	6,783
Building Construction	Welders	1.0	8.00	46.0	0.45	300	0.6	1,490
Paving	Pavers	2.0	8.00	130.0	0.42	20	0.6	524
Paving	Paving Equipment	2.0	8.00	132.0	0.36	20	0.6	456
Paving	Rollers	2.0	8.00	80.0	0.38	20	0.6	292
Architectural Coating	Air Compressors	1.0	6.00	78.0	0.48	20	0.6	135
							Sub TOTAL	**28,459**

Phase 4 Construction Offroad Equipment (2029)

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor	Number of days	Average Daily Factor	Diesel Fuel Usage
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40	10	0.6	711
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37	10	0.6	345
Grading	Excavators	2	8.00	158	0.38	30	0.6	865
Grading	Graders	1	8.00	187	0.41	30	0.6	552
Grading	Rubber Tired Dozers	1	8.00	247	0.40	30	0.6	711
Grading	Scrapers	2	8.00	367	0.48	30	0.6	2,537
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37	30	0.6	517
Building Construction	Cranes	1	7.00	231	0.29	300	0.6	4,220
Building Construction	Forklifts	3	8.00	89	0.20	300	0.6	3,845
Building Construction	Generator Sets	1	8.00	84	0.74	300	0.6	4,476
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37	300	0.6	6,783
Building Construction	Welders	1	8.00	46	0.45	300	0.6	1,490
Paving	Pavers	2	8.00	130	0.42	20	0.6	524
Paving	Paving Equipment	2	8.00	132	0.36	20	0.6	456
Paving	Rollers	2	8.00	80	0.38	20	0.6	292
Architectural Coating	Air Compressors	1	6.00	78	0.48	20	0.6	135
							Sub TOTAL	**28,459**

Trips and VMT

Phase 2 (2023)

Phase Name	Daily Worker Trip	Days per Year	Total Worker Trips	Total Vendor Trips	Total Hauling Trips	Worker Trip Length (miles)	Vendor Trip Length (miles)	Haul Trip Length (miles)	Total Worker Trip Length (miles)	Total Vendor Trip Length (miles)	Total Haul Trip Length (miles)	Total gallons of gasoline	Total gallons of diesel
Site Preparation	18.00	10	180	0.00	3,249.00	14.70	6.90	20.00	2,646	-	64,980	101	**10,613**
Grading	15.00	20	300	0.00	975.00	14.70	6.90	20.00	4,410	-	19,500	168	**3,185**
Building Construction	116.00	230	26680	49.00	0.00	14.70	6.90	20.00	392,196	338	-	14,985	**55**
Paving	15.00	20	300	0.00	0.00	14.70	6.90	20.00	4,410	-	-	168	**0**
Architectural Coating	23.00	20	460	0.00	0.00	14.70	6.90	20.00	6,762	-	-	258	**0**
											Sub TOTAL	**15,682**	**13,853**

Phase 3 (2023)

Phase Name	Daily Worker Trip	Days per Year	Total Worker Trips	Total Vendor Trips	Total Hauling Trips	Worker Trip Length (miles)	Vendor Trip Length (miles)	Haul Trip Length (miles)	Total Worker Trip Length (miles)	Total Vendor Trip Length (miles)	Total Haul Trip Length (miles)	Total gallons of gasoline	Total gallons of diesel
Site Preparation	18.00	10	180	0.00	4,950.00	14.70	6.90	20.00	2,646	-	99,000	101	**16,169**
Grading	20.00	30	600	0.00	1,485.00	14.70	6.90	20.00	8,820	-	29,700	337	**4,851**
Building Construction	163.00	300	48900	72.00	0.00	14.70	6.90	20.00	718,830	497	-	27,465	**81**
Paving	15.00	20	300	0.00	0.00	14.70	6.90	20.00	4,410	-	-	168	**0**
Architectural Coating	33.00	20	660	0.00	0.01	14.70	6.90	20.00	9,702	-	0	371	**0**
											Sub TOTAL	**28,443**	**21,101**

Phase 4 (2029)

Phase Name	Daily Worker Trip	Days per Year	Total Worker Trips	Total Vendor Trips	Total Hauling Trips	Worker Trip Length (miles)	Vendor Trip Length (miles)	Haul Trip Length (miles)	Total Worker Trip Length (miles)	Total Vendor Trip Length (miles)	Total Haul Trip Length (miles)	Total gallons of gasoline	Total gallons of diesel
Site Preparation	18.00	10	180	0.00	6,696.00	14.70	6.90	20.00	2646	0	133920	90	**20,856**
Grading	20.00	30	600	0.00	2,009.00	14.70	6.90	20.00	8820	0	40180	299	**6,257**
Building Construction	231.00	300	69300	98.00	0.00	14.70	6.90	20.00	1018710	676.2	0	34,539	**105**
Paving	15.00	20	300	0.00	0.00	14.70	6.90	20.00	4410	0	0	150	**0**
Architectural Coating	46.00	20	920	0.00	0.00	14.70	6.90	20.00	13524	0	0	459	**0**
											Sub TOTAL	**35,535**	**27,219**

Notes: Consistent with CalEEMod, worker vehicles assumed to be gasoline and 50% LDA, 25% LDT1, and 25% LDT2. Vendor and haul trips are assumed to be 100% diesel Heavy-Duty Trucks (T7).

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Air District
Region: South Coast AQMD
Calendar Year: 2023
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	CalYr	VehClass	MdlYr	Speed miles/hr	Fuel	Population vehicles	VMT miles/day	Trips trips/day	Fuel gas 1,000 gallons/day	Diesel gas 1,000 gallons/day	Miles per gallon	Gasoline miles per gallon	Diesel miles per gallon
Sacrament	2023	LDA	Aggregate	Aggregate	Gasoline	5,515,654	221,235,121	25,694,584	7,705	-	28.71	26.17	6.12
Sacrament	2023	LDT1	Aggregate	Aggregate	Gasoline	513,619	18,520,848	2,259,157	773	-	23.95		
Sacrament	2023	LDT2	Aggregate	Aggregate	Gasoline	2,500,702	103,068,052	11,756,611	4,422	-	23.31		
Sacrament	2023	T7 Tractor	Aggregate	Aggregate	Diesel	24,627	1,989,661	357,826	-	325	6.12		

Notes: Consistent with CalEEMod, worker vehicles assumed to be gasoline and 50% LDA, 25% LDT1, and 25% LDT2. Vendor and haul trips are assumed to be 100% diesel Heavy-Duty Trucks (T7).

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Air District
Region: South Coast AQMD
Calendar Year: 2029
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	CalYr	VehClass	MdlYr	Speed miles/hr	Fuel	Population vehicles	VMT miles/day	Trips trips/day	Fuel gas 1,000 gallons/day	Diesel gas 1,000 gallons/day	Miles per gallon	Gasoline miles per gallon	Diesel miles per gallon
Sacrament	2024	LDA	Aggregate	Aggregate	Gasoline	5,208,020	205,644,381	24183171	6371	-	32.28	29.49	6.42
Sacrament	2024	LDT1	Aggregate	Aggregate	Gasoline	471,837	17,027,392	2082347	637	-	26.73		
Sacrament	2024	LDT2	Aggregate	Aggregate	Gasoline	2,808,835	113,933,803	13178937	4268	-	26.69		
Sacrament	2024	T7 Tractor	Aggregate	Aggregate	Diesel	32383.71511	2169152.42	470535.3806	-	337.811	6.42		

Notes: Consistent with CalEEMod, worker vehicles assumed to be gasoline and 50% LDA, 25% LDT1, and 25% LDT2. Vendor and haul trips are assumed to be 100% diesel Heavy-Duty Trucks (T7).

Appendix C

Cultural Resources
Assessment Report

Phase I Cultural Resources Assessment Report for the Temecula Valley Hospital Master Plan Update Project, City of Temecula, Riverside County, California

April 2022

APN 959-080-001 through -004 and 959-080-007 through -010

Temecula California USGS 7.5' Quads; Township 8 South, Range 2 East, Unsectioned

Prepared for:

City of Temecula
41000 Main Street
Temecula, CA 92590
(951) 694-6444

Prepared on Behalf of:

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Key Words: negative survey, Temecula, California 7.5-minute Topographic Map, 959-080-001 through -004 and 959-080-007 through -010, P-33-021292, P-33-021293, P-33-021294, P-33-021295, and P-33-021298

NATIONAL ARCHAEOLOGICAL DATABASE INFORMATION

Author: Shelby Castells, MA, RPA

Firm: ASM Affiliates, 8555 Aero Drive, Suite 206, San Diego, CA 92123

Client: Ascent Environmental

Submitted to: City of Temecula

Report Date: April 2022

Report Title: Phase I Cultural Resources Assessment Report for the Temecula Valley Hospital Master Plan Update Project, City of Temecula, Riverside County, California

Type of Study: Phase I Cultural Resources Assessment

New Sites: None

Updated Sites: None

USGS Quad: Temecula

Area: 36 acres

Keywords: negative survey, Temecula, California 7.5-minute Topographic Map, 959-080-001 through -004 and 959-080-007 through -010, P-33-021292, P-33-021293, P-33-021294, P-33-021295, and P-33-021298

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MANAGEMENT SUMMARY

This report provides the results of a Phase I cultural resources assessment completed by ASM Affiliates (ASM) for the proposed Temecula Valley Hospital Master Plan Update Project (Project), City of Temecula, Riverside County, California. This study was performed in compliance with the California Environmental Quality Act (CEQA), the City of Temecula is the lead agency. The archaeological survey was conducted as an update to the *Historical / Archaeological Resources Survey Report Temecula Hospital Project, Tentative Parcel map No. 32468, City of Temecula, Riverside County, California* (CRM Tech 2004).

This Phase I cultural resources assessment was conducted to identify all cultural resources and historic properties within the Project area and to determine project-related effects on these resources. The study consisted of a review of relevant site records and reports on file with the Eastern Information Center (EIC) of the California Historical Resources Information System (CHRIS) within a one-mile (mi.) search radius, a pedestrian survey of the Project area by an archaeologist, and a review of the Sacred Lands File (SLF) held by the Native American Heritage Commission (NAHC). This report includes the results of the study, as well as a brief historic background sketch for the area, and recommendations for future work.

The record search of the SLF held by the NAHC has not been received at time of writing but is assumed to be positive. The results will be added to a subsequent draft of the report when received.

The record search from the EIC was conducted on April 19, 2022, by EIC staff. The EIC reported that 75 previously prepared cultural resources studies have been conducted within the one-mile record search radius. A total of 29 cultural resources have been previously recorded within the one-mile record search radius, five of which have been recorded within the Project area. Of the 29 previously recorded cultural resources, 8 are prehistoric archaeological sites, three are protohistoric archaeological sites, two are multicomponent archaeological sites, two are historic archaeological sites, three are historic buildings, 9 are prehistoric isolated finds, and one is a historic isolated fine. The five cultural resources previously recorded within the project area consisted of five prehistoric isolates identified during construction monitoring of the initial grading of the project area in 2011.

An archaeological survey of the proposed project area was completed by ASM on April 15, 2022, by ASM Archaeologist Michelle Hamilton. Ground surface visibility varied due to previous development and vegetation. On site vegetation included non-native grasses, invasive weeds, and ornamental plants. The project area was transected in 5-meter intervals. The archaeological survey was negative and no evidence of cultural resources was identified.

The archaeological survey was negative; however, the records search of the Sacred Lands File held by the NAHC is presumed to be positive and the CHRIS record search for the project area identified five cultural resources within the project area, prehistoric isolates P-33-021292, P-33-021293, P-33-021294, P-33-021295, and P-33-021298. These prehistoric isolates were removed during the 2011 grading of the project and are no longer present within the project area. Therefore, there are no historical resources according to CEQA present within the Project area and implementation of the Project will not have an effect on historical resources.

The project area is located in an area known to be a center of both Native American and Euromerican settlement during the late 18th and early 19th centuries. The project area was mass graded in 2011 and yielded subsurface artifacts. Other projects in the vicinity have also yielded subsurface deposits. Because of the demonstrated sensitivity for subsurface cultural remains from the prehistoric and historic periods, archaeological and Native American monitoring is recommended during any grading, grubbing, trenching,

excavations, or earth-moving activities associated with the proposed project which was not previously monitored, which will extend deeper than previous mass grading, or has potential to encounter native soil.

1. INTRODUCTION AND SETTING

PURPOSE OF STUDY

This Phase I cultural resources assessment was conducted in compliance with the California Environmental Quality Act (CEQA), which requires that before approving discretionary projects the lead agency must identify and examine the significant adverse environmental effects which may result from that project. A project that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment (Sections 15064.5(b) and 21084). A substantial adverse change is defined as demolition, destruction, relocation, or alteration activities which would impair historical significance (Sections 15064.5(b)(1) and 5020.1). Any historical resources listed in or eligible to be listed in the California Register of Historical Resources (CRHR), including archaeological resources, is considered to be historically or culturally significant. Resources which are listed in a local historic register or deemed significant in a historical resource survey as provided under Section 5024.1(g) are presumed historically or culturally significant unless "the preponderance of evidence" demonstrates they are not. Finally, a resource that is not listed in, or determined to be eligible for listing in, the CRHR, not included in a local register of historic resources, or not deemed significant in a historical resource survey may nonetheless be historically significant, pursuant to Section 21084.1.

The archaeological survey was conducted as an update to the *Historical / Archaeological Resources Survey Report Temecula Hospital Project, Tentative Parcel map No. 32468, City of Temecula, Riverside County, California* (CRM Tech 2004).

PROJECT DESCRIPTION

The Temecula Regional Hospital Master Plan was approved through the certification of the Temecula Regional Hospital Environmental Impact Report (EIR) in 2006 and a Supplemental EIR in 2008. The 2006/ 2008 EIR evaluated the development of the Temecula Regional Hospital over five phases. This Master Plan was subsequently revised with a Major Modification and Addendum in 2011, a Conservation Easement in 2012, and a Supplemental EIR in 2014. This Master Plan included a hospital complex, storage building, medical office buildings, a cancer center, a fitness rehabilitation center, a jogging trail, a helipad, onsite roadways, drainage infrastructure, and stormwater quality basins. Phase I of the Master Plan was constructed in 2011 and began operations in 2013. The project applicant, Universal Health Services, Inc. (UHS), is proposing the Temecula Valley Hospital Master Plan Update (proposed project), which is the subject of this Subsequent EIR. The proposed project would consist of revisions to the currently approved project, which would require a Major Modification and Planned Development Overlay (PDO) Amendment. Specifically, the proposed project consists of development of the following structures: an approximately 102,000-square-foot, four-story Behavioral Health Building; an approximately 20,000-square-foot expansion to the emergency department; a 125,000-square-foot, five-story second hospital tower; an 80,000-square-foot medical office building, and a 14,000-square-foot utility plant; an approximately 125,000-square-foot, five-story third hospital tower; an 80,000-square-foot, three-story medical office building; and a four-story parking structure. In addition, the proposed project includes relocating the existing helipad from its interim location to the roof of the proposed parking structure. The existing hospital building and associated infrastructure that were constructed during Phase I of the currently approved project would be maintained in place.

PROJECT LOCATION

The proposed project is located at 31700 Temecula Parkway in the City of Temecula in Riverside County, California (project site) (Figure 1). The project site encompasses 35.31 acres on Assessor's Parcel Number (APN) 959-080-026. The project site is approximately 720 feet west of Margarita Road, 420 feet south of De Portola Road, and is bordered to the south by Temecula Parkway (also named Highway 79) and by Dona Lynora to the west. Regional access to the project site is provided by Interstate-15 (I-15), which is two miles west of the project site, and Temecula Parkway. The project is in an unsectioned portion of the Rancho Temecula Mexican Land Grant in Township 8 South, Range 2 West (San Bernardino Base Meridian) and on the Temecula USGS 7.5' Quadrangle.

PROJECT PERSONNEL

ASM Director Shelby Castells, RPA, MA, served as the primary author of this report and managed the study. ASM Assistant Archaeologist Michelle Hamilton conducted the archaeological survey and contributed to the report. Qualifications are provided in Appendix A.

SETTING

The Project area is located within southwestern Riverside County within a suburban area with elevations within the parcel ranging from 820 to 1,000 feet (280 to 305 meters) above mean sea level (amsl). Modern climate conditions within the Project area consist of a Mediterranean climate, with average rainfall of nine to ten inches per year, generally from January through March. The project area is located within the foothills of the western and southern portions of the Santa Ana Mountain Range, which belongs to the Peninsular Ranges Geomorphic Province. The Peninsular Ranges make up the majority of western Riverside County and contains a series of mountain ranges separated by northwest trending valleys (California Department of Conservation, California Geological Survey, 2002). The Project area is located southeast of Lake Elsinore, the largest natural freshwater lake in Southern California, which is situated at the lowest point within the San Jacinto River watershed. Vegetation within the Project Area consisted of non-native grasses, invasive weeds (e.g., mustard) and ornamental plants.

The entire project site was entirely mass graded in 2011. The project site is currently developed with a hospital building, storage building, helipad, onsite roadways and access drives, drainage infrastructure, and stormwater quality basins. Approximately 86,072 square feet (SF) of the project site is comprised of building footprint (5.5%), 33,481 SF of the project site is comprised of parking area footprint (21.4%), and 1,102,552 SF of the project site is comprised of landscaped area (70.6%).

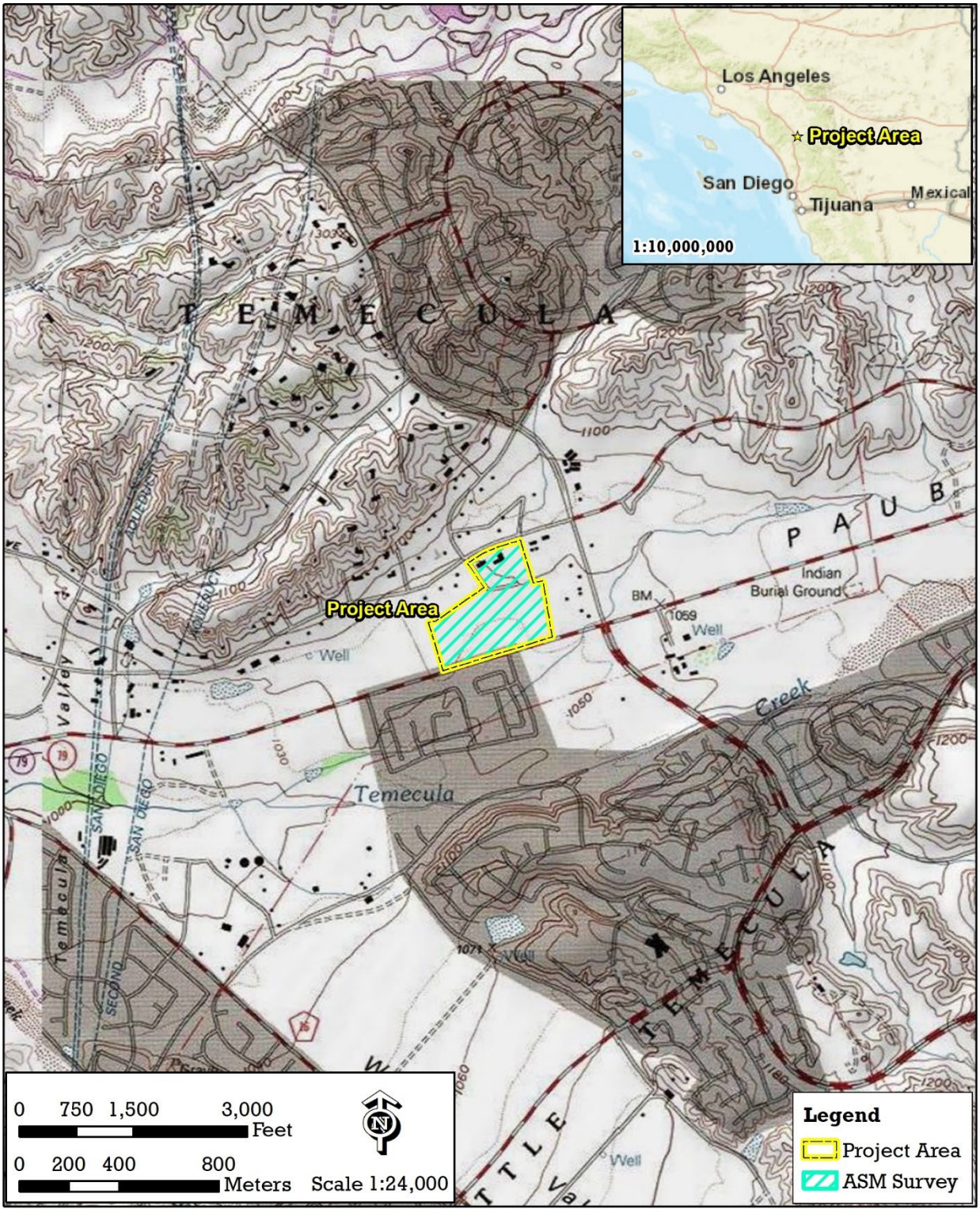


Figure 1. Project Location Map.

2. PREHISTORIC CONTEXT

The cultural setting of the Project area can be divided into the prehistoric, ethnohistoric, and historic periods, as discussed below.

PREHISTORIC ARCHAEOLOGY

While no single chronology is agreed upon, archaeologists generally concur that human occupation within Southern California spans at least the last 14,000 years. It was believed that people first came to North and South America over the Bering Land Bridge, however recent studies have identified that this ice-free corridor was not passable until 13,000 years ago and an alternate coastal route has been proposed. The Pacific Northwest coast was deglaciated by approximately 14,000 B.C. and travel along the Pacific Coast in boats would have been possible during this period. A widespread kelp forest could have created a "kelp highway" with enough resources to support people entering North America (Erlandson et al. 2007, Masters and Aiello 2007, Gallegos 2017). Erlandson (2007:56) contends that "it seems most likely that the peopling of the Americas included both coastal and interior migrations of peoples from northeastern Asia and Beringia, with an earlier migration possibly following the northern Pacific coast".

In Riverside County and the surrounding area, there is no consensus on times or terms in which human occupation started. It is unknown if the first people arrived in Riverside County via the coast or from the pluvial lakes within the Great Basin to the east, as both locations contain archaeological sites with early dates (Gallegos 2017). In addition, the inland valleys of Southern California, have been less intensively studied than the desert and coastal regions and therefore a variety of cultural periods have been suggested but generally researchers have not reached a consensus on the start or phases of prehistoric occupation of the area (Horne and McDougall 2007). Overall, three general cultural periods are recognized: the Paleo-Indian Period, the Archaic Period and the Late Prehistoric Period.

Paleo-Indian Period / San Dieguito Period (ca. 12,000 to 8,000 YBP)

As in most of North America, the Paleo-Indian Period is the earliest recognized period of California prehistory and coincides with the end of the late Pleistocene, circa 11,000 to 13,000 YBP (years before present). The environment was cool and moist, with deep pluvial lakes in the desert and basin lands (Moratto 1984). However, by the end of the late Pleistocene, the climate became warmer, causing glaciers to melt and sea levels to rise. Inland lakes began to recede and evaporate and there was a great deal of erosion in the coastal areas. The warmer climate also resulted in major vegetation changes and the extinction of Pleistocene megafauna (Moratto 1984, Martin 1967, Martin 1973, Fagan 1991).

Paleo-Indian sites have been identified across most of North American, often referred to as the Clovis Complex. The Clovis Complex is defined by the use of large fluted projectile points and other large bifacial stone tools. Within Southern California and the Colorado Desert the Clovis Complex is referred to as the Western Stemmed Point Tradition (WSPT) and was characterized by leaf shaped and large stemmed projectile points, scrapers and other stone tools. Archaeological evidence of the WSPT has been found across the western interior of North America with small regional variations (Gallegos 2017, Sutton 2016, Warren 1968). Similar archaeological remains are also known as the Lake Mohave Complex (Warren 1968). Overall, ground stone use was infrequent in San Dieguito archaeological remains, leading to the belief that the San Dieguito were highly mobile groups and their subsistence practices focused on the hunting of large game.

Several isolated fluted points have been recorded in Southern California, but none have been recorded near the project area in associated with radiocarbon dates or in association with Pleistocene fauna (Rondeau et al. 2007). In Riverside County, only one isolated fluted point has been identified on the surface of a site in the Pinto Basin in the central part of the county (Campbell and Campbell 1935, Dillon 2002:113). Fluted points have been dated outside of California to 13,500 years before the present. The earliest known archaeological sites near the Project area, with reliable dates, are from the Channel Islands. The Arlington Springs site on Santa Rosa Island dates to 13,300 years ago, and the Daisy Cave site on San Miguel Island dates to 12,300-11,120 years ago (Lightfoot and Parrish 2009). Daisy Cave mentioned above, is one of the largest, early Holocene archaeological deposits that has been excavated. The study identified over 18 types of fish, multiple shellfish, marine mammals, and birds remains, showing that people relied on a wide assortment of marine resources as early as 8000 B.C., rather than subsisting on large mammal hunting (Erlandson, et al., 2007). Over 25 shell midden sites that date to between 12,000 and 8,000 years ago have been recorded on the Channel Islands. On the mainland, a site near San Luis Obispo dates to 10,300-9,650 years ago and a several sites on Cedros Island in Baja California date to 12,000 years ago (Lightfoot and Parrish 2009). Other early sites in the vicinity of the Project area consist of the C.W. Harris Site (SDI-149), in San Diego County, with radiocarbon dates ranging from 9,030 YBP to 8,540 YBP (Byrd and Raab 2007, Gallegos 2017) and within Orange County, there are sites dating from 9,000 to 10,000 years ago (Macko 1998a:4, Mason and Peterson 1994:55–57) and the Elsinore site (CA-RIV-2798-B), has deposits dating as early as 8,580 YBP (Grenda 1997:260). As, no archaeological sites dating to the Paleoindian Period have been identified within the vicinity of the Project Area. It is unknown if the lack of Paleoindian Period sites relates to a lack of archaeological data or is evidence that the vicinity of the Project Area was a less sustainable area than the interior desert or the coastal regions. During this period the desert interior may have been more suitable to prehistoric occupation than the interior valleys of southern California and it is more likely that Paleoindian populations in southern California were centered on the coastal or interior desert regions or around the few large, reliable, drought-resistant water sources present within the inland valley areas (Horne and McDougall 2007).

When Paleo megafauna began to become extinct, Paleo-Indian peoples had to focus on different subsistence strategies (Erlandson et al., 2007). Recent studies along the Southern California coast have focused on the diversity of subsistence strategies during this period, acknowledging the use of smaller animals and plant foods as staples, with limited evidence for big game hunting. Byrd and Raab argue that an environmental change from 10,000 to 8,000 cal. B.C. caused warming and drying conditions which shrunk the interior lakes and streams in Southern California's deserts and spurred the change from a reliance on large game hunting to a focus on a variety of subsistence strategies (Byrd and Raab 2007). Archaeological research across Southern California has shown the use of shellfish, marine mammals, and fish declined proportionately with distance from the coast. Less is known about plant use in interior sites aside from the fact that an increase of milling tools is present suggesting that plant resources were heavily relied upon during this early period (Erlandson et al., 2007).

Archaic Period / Millingstone Horizon (ca. 9500/8000 to 1500 YBP)

The Archaic Period within the vicinity of the Project area was defined by a lengthy time period with little change within the archaeological record. In contrast to the Paleoindian Period the archaeological record within the Archaic Period consisted of a tool kit that focused on collection and processing of small plant seeds and hunting of a variety of medium and small game animals (Byrd and Raab 2007, Hale 2009, Rogers 1945, Warren 1968). Across Southern California this period is often referred to as the Millingstone Horizon, and is often divided into the Early, Middle, and Late Archaic Period. In addition to the Early, Middle, and Late Archaic Period, it was also referred to as the Encinitas Tradition by Warren (1968), the La Jolla Tradition, in San Diego County, and the Greven Knoll Pattern (SWCA 2018, Sutton 2010, Sutton 2011). Sutton created the Greven Knoll Pattern nomenclature as a redefined interpretation of the Encinitas

Tradition, and used it to refer to all expressions of the inland Milling Stone Horizon in Southern California north of San Diego County (Sutton 2010).

There is a discrepancy on the start of the Millingstone Horizon, while Lightfoot and Parrish (2009) argues that early milling stone assemblages show that by 9,000 years ago milling tools were in use and that seeds and nuts must have been a dominate food source, other archaeologists argue that the Millingstone Horizon is generally attribute to the Middle to Late Holocene Period and has been identified across much of central and southern California by ca. 8,000 to 7,000 YBP (Byrd and Raab 2007, Hale 2009, Moratto 1984).

Interior archaeological sites from this period were thought to have been left by seasonally mobile groups with small settlements, based on the availability of food resources. There is little archaeological evidence for group size and type and use of habitation structures within Riverside County for the middle Holocene. The Millingstone Horizon or Archaic Period tool kit at inland sites focused on collection and processing of small plant seeds and hunting of a variety of medium and small game animals; while along the coast there was a reliance on marine resources (Byrd and Raab 2007, Hale 2009, Rogers 1945, Warren 1968). Artifacts from this period consist of grinding implements (manos and metates), atlatl or dart projectile points, quarry-based tools, as well as lithic choppers and scrapers that indicate the focus was on collection and processing of small plant seeds and hunting of a variety of medium and small game animals (Byrd & Raab 2007, Hale 2009, Rogers 1945, Warren 1968).

Mortuary practices consist of flexed inhumations which are often accompanied by grave goods of milling stones and other artifacts. This seems to represent a more sedentary lifestyle with a subsistence economy based upon the use of a broad variety of terrestrial resources than identified during the Paleoindian Period. Research indicates that residential bases or camps were moved in a seasonal round (de Barros 1996, Mason et al. 1997, Koerper 2002), with some sites occupied year-round, with portions of the village population leaving at certain times of the year to exploit seasonally available resources.

During this lengthy period very little technological changes are identified within the archaeological record until approximately 5,000 years ago when there was an increase in sedimentation along the coast. This transformed the estuaries into shallow wetlands, closed several of the lagoons, transformed the coastal areas into sand and mudflats, and limited the kelp forests, causing the coastal region to have a lower level of subsistence resources than in the past. During this time the deserts became more arid, and there was an increase in use of the inland valleys within the vicinity of the Project Area (Byrd and Raab 2007, Gallegos 2007, Masters and Aiello 2007).

Early Archaic Period (ca. 9500/8000 to 7000 YBP)

Horne and McDougall (2007) report that there is little archaeological evidence within Riverside County during this period. However, several sites within the region date to the Early Archaic Period. The first consists of a single human burial dating to 7380 ± 300 B.P., which was capped by several large highly shaped metates. The second was a small temporary camp dated by obsidian hydration data and stratigraphic information to the Early Archaic Period (Horne and McDougall 2007:19). An additional site within Riverside County, SDI-6069, within the San Jacinto Valley area was identified in an alluvial fan just above the floor of the San Jacinto Valley. The site contains several different cultural occupations, and the lowest level contained radiocarbon dates from 7940 to 8370 B.P., while radiocarbon from the upper component of the site dated to 2230 B.P., within the Late Archaic Period (Horne and McDougall 2007:19). An additional site, SDI-2798/H, known as the Lake Elsinore site, contained one radiocarbon date from 8400 ± 60 B.P. Additional radiocarbon dates show habitation of the site during the Middle Archaic Period as well (Horne and McDougall 2007:19).

Artifacts associated with these Early Archaic Period sites include flaked stone tools and ground stone tools. Data recovery excavation within SDI-6069 identified a larger variety of artifact types including an extensive variety of flaked and ground stone tools, marine and terrestrial faunal remains, and bone and shell tools and ornaments. Crescents have also been found sparsely during this period.

Overall evidence of Early Archaic Period habitations in the vicinity of the Project area are scarce, identifying that during this period the region around the Project area was likely too arid to support sedentary residential occupation, and the few sites dating to this time period with evidence of a larger habitation area were found near large inland water sources (Horne and McDougall 2007:19).

Middle Archaic Period (ca. 7000 to 4000 YBP)

During the Middle Archaic Period environmental conditions changed as the deserts became more arid and the coastal estuaries became less productive for shellfish and other food sources, causing a depopulation along the coastal zone, and settlements shifted to inland river valleys with an intensification of terrestrial game and plant resources (Byrd and Raab 2007, Gallegos 2007, Masters and Aiello 2007). Gallegos states that during this period to adapt to the changing environmental condition people changed their settlement patterns by increasing their use of plant and terrestrial animal use, which is evidence in the archaeological record through an increase in habitation areas near oak and grassland resources and away from the coastal zone (Gallegos 2007). Therefore, the inland valleys of western Riverside County became a more hospitable environment and there is a significantly larger number of archaeological sites dating to this period within the vicinity of the Project area (Horne and McDougall 2007).

The archaeological record dating to the Middle Archaic Period has identified several intensively used residential bases, and numerous temporary camps. Diagnostic artifacts include Pinto and Silver Lake projectile points and other large leaf-shaped projectile points, choppers, crescents, large drills, manos and metates inhumations, and a variety of flaked and groundstone tools. Additional non-utilitarian items include beads, pendants, charmstones, discoidals, spherical stones, and cogged stones (Horne and McDougall 2007). During this period, it is largely unknown if occupations of inland and coastal sites represent seasonal movement by the same groups of people, or if coastal sites represent a more permanent occupation, while inland groups followed a more mobile subsistence round.

Late Archaic Period (ca. 4000 to 1500 YBP)

The Late Archaic Period corresponds to a period of increased moisture in Southern California, followed by another dry period. This period is also referred to as the Intermediate Period by Wallace (1955) and the Campbell Tradition (Warren 1968). Horne and McDougall (2007) report that archaeological site types during this period range from residential bases with large diverse artifact assemblages, abundant faunal remains and cultural features to temporary bases, camps and task specific activity areas. More intensely used archaeological sites from the Late Archaic Period are often found adjacent to permanent water sources while smaller or temporary sites are found on upland benches or adjacent to alluvial fans (2007:23). In contrast to the Early and Middle Archaic Periods, archaeological sites from the Late Archaic Period show a longer and more frequent reuse suggesting an increase in sedentism. Generally, the artifact assemblage is similar to the Early and Middle Archaic Period, focusing on large projectile points, used for spears and atlatls, and ground stone items. However, projectile points became more refined, such as notched points, points with concave bases, and small stemmed points. Greater use of the mortar and pestle suggest that acorns became a more important food source. There was also an increase in broad leaf-shaped blades, bone and antler tools and use of asphaltum and steatite (Horne and McDougall 2007:24). In general, through the Archaic Period the archaeological evidence and artifact assemblages remain similar, but become more elaborate over time, possibly implying an increase in sedentism, an increase in subsistence efficiency, and/or an increase in sociopolitical complexity (Horne and McDougall 2007:24).

Little is known about the transition from the Archaic Period to the Late Prehistoric Period. Laylander reports that there is a relative scarcity of dates within archaeological sites from the period between 1300 B.C. to A.D. 200, but it is unknown if this represents a decline in population during the end of the Archaic Period, or a bias in research data (Laylander 2014).

During the end of the Late Archaic Period several researchers have identified an intermediate period, however it is largely unknown if this period is representative of the cultural change between the Milling Stone Period and the Late Prehistoric Period over time, adaptation to changing environmental conditions, or a distinct culture (Horne and McDougall 2007, SWCA 2018). This intermediate period roughly corresponds to the Medieval Warm Period which caused drought and warmer temperatures across the western United States. Archaeological evidence during this period supports a greater reliance on acorns as a food staple. Other changes include an influx of archaeological sites at reliable water sources such as the Colorado River and Lake Cahuilla.

Late Holocene Period /Late Prehistoric Period (1500 to 150 YBP)

There are differing opinions between researchers as to whether the shift to the Late Prehistoric Period was caused by new technologies developed by people already living in the area, spurred by changing environmental conditions, or if it was brought in by a migration of people into Southern California. Archaeological and anthropological evidence suggests that at approximately 1500 to 1,350 YBP, Takic speaking (speakers of Uto-Aztecan languages) groups from the Great Basin region moved into Riverside County, marking the transition to the Late Prehistoric Period, known as the Shoshonean Wedge (Byrd and Raab 2007, Gallegos 2017). An analysis of the Takic expansion by Sutton (2009) indicates that inland southern California was occupied by “proto-Yuman” populations before 1,000 YBP. The comprehensive, multi-phase model offered by Sutton (2009) uses linguistic, ethnographic, archaeological, and biological data to propose that Takic speaking groups moved south and east from the Los Angeles Basin. They then diffused south into Orange County and northern San Diego County, inland up the San Luis Rey River into the Palomar Mountain area and north into interior southern California around 1,250 YBP. In addition, during this period Lake Cahuilla began to receded, and the large populations of people living along the lake shores transitioned into the Colorado River basin to the east or the inland valleys to the west. The Late Prehistoric Period is identified as a continuation of the cultural practices that were present during the initial Euro-American exploration of Southern California and that were recorded during the Ethno-Historic Period (Byrd and Raab 2007).

The Late Prehistoric Period is defined by the introduction of the bow and arrow after approximately A.D. 500 and by A.D. 1000 ceramic vessels begin to appear at some sites (Meighan 1954, Warren 1961). Also, during this time mortuary practices changed from inhumations to cremations. It is thought that this practice came from the north or east, and it is unknown if the transition from inhumations to cremations was adopted for religious or population reasons, or to control the spread of disease (Byrd and Raab 2007, Lightfoot and Parrish 2009, Gallegos 2017). Other hallmarks of the Late Prehistoric Period include an increase in the reliance on plant food sources, small projectile points, increase use of mortars and pestles, the use of obsidian from the Obsidian Butte source and overall an increase in the complexity and diversity of material cultural (SWCA 2018).

Many of the Late Prehistoric Period archaeological sites are located inland and contain bedrock milling features, thought to relate to acorn or other seed processing. People lived in larger coastal and lower valley villages, that were located near permanent water sources. These villages acted as ceremonial and political centers, and may have been occupied, at least partially, year-round. Smaller villages and residential areas were inhabited seasonally and were located near subsistence resources or were used for specialized activities, especially in inland areas (Byrd and Raab 2007, Lightfoot and Parrish 2009). This may have led to an increase in community size, longer stays at the major residences and different societal organization.

Archaeological remains have identified over four dozen plant types were used in Southern California during this period (Byrd and Raab 2007). Grass seeds had the highest frequencies of use with a gradual increase in acorn usage (Hale 2009). Little is known about plant cultivation during the Late Holocene. There is evidence that a high number of plants that follow fires were used, but no major research projects have focused on proto-agriculture. Early Spanish accounts identify that the Native Americans were practicing cultivation of certain plants through burning and water diversion (Gallegos 2017). Agriculture was in use along the Colorado River, east of the Project Area as early as A.D. 700 (Schaefer and Laylander 2007).

Changes in lithic artifacts show a greater number of small, finely chipped projectile points, usually stemless with convex or concave bases, suggesting an increased utilization of the bow and arrow rather than the atlatl and dart for hunting. Common lithic materials for formed tools, primarily projectile points include chert, jasper, agate, silicified wood, rhyolite, wonderstone, quartz, obsidian from Obsidian Butte, and Santiago Peak metavolcanics (Shackley 2004, Lightfoot and Parrish 2009). Other items include steatite cooking vessels and containers, the increased presence of smaller bone and shell circular fishhooks, perforated stones, arrow shaft straighteners made of steatite, a variety of bone tools, and personal ornaments made from shell, bone, and stone. There is also an increased use of asphalt for waterproofing and as an adhesive (SWCA 2018).

During the Late Prehistoric Period villages acted as ceremonial and political centers, and may have been occupied, at least partially, year-round. Smaller residential areas were inhabited seasonally and were located near subsistence resources or were used for specialized activities, especially in inland areas (Byrd and Raab 2007, Lightfoot and Parrish 2009). This may have led to an increase in community size, longer stays at the major residences and different societal organization. Most of the rock art in Riverside County, as in the rest of Southern California has been attributed to the Late Prehistoric Period. Ceramic use included a variety of vessel types as well as clay smoking pipes. While ceramic use is present in the Lake Cahuilla region as early as 800 YBP and there were at least five ceramic types present in the desert (Shackley 2004), it is not present in the vicinity of the Project area until circa 350 YBP (Horne and McDougall 2007, Schaefer and Laylander 2007). Ceramic types consisted of brownwares, graywares, and buffwares.

ETHNOHISTORIC PERIOD

The Late Prehistoric period essentially ended with the Spanish colonization and establishment of the missions. Disease and forced relocation, which reduced the populations considerably among the coastal settlements, did much to destroy the cultural pattern established at that period (Bean and Shipek 1978). The Late Prehistoric culture pattern appears to have lasted longer among the inland groups. Even after the missions were secularized in 1834, some inland groups were able to maintain most of their traditional orientation until the arrival of the settlers from 1859-1879, when most of the groups were displaced or dispersed (Bean and Shipek 1978). During the Ethnohistoric period, the Project area was inhabited by the Luiseño. Settlement patterns were essentially settlements typically located within valley bottoms, along streams, or along coastal strands near mountain ranges. Villages were often located in sheltered areas near good water supplies, in a defensive location, or on the side of warm thermal zone slopes.

Within the region, the diverse ecological zones provided a wide array of subsistence products. Principal game animals included deer, rabbit, jackrabbit, woodrat, mice, ground squirrels, antelope, valley and mountain quail, doves, ducks, and other birds. Coastal game included sea mammals, fish, mollusks, and crustaceans. Fresh-water game included trout and other local fish (Bean and Shipek 1978, Kroeber 1925). Of high importance were acorns, and village locations were typically located near water sources for use in acorn leeching. Grass seeds were the next most ample resource, in addition to manzanita, sunflower, chia, sage, lemonade berry, prickly pear, and pine nuts. Fire was used as a crop management technique as well as for community rabbit drives. Tools for the acquisition, storage, or preparation of food were highly varied

and constructed from locally derived materials, with a few items acquired via trade from specific localities (Bean 1978). Hunting activities used either individual or group participation, using bows and arrows for larger game or curved throwing sticks, slings, traps, or pit type deadfalls for smaller animals. Cremations were used rather than inhumations.

Luiseño

The traditional use area of the Luiseño encompassed about 1,500 square miles and extended in a north-northeasterly direction from Agua Hedondia Lagoon to Aliso Creek and, to the east, included what are today known as Oceanside, Vista, San Marcos, Escondido, Palomar Mountain, the Gujieto, a portion of Valle de San Jose, north to Soboba and Temescal (Bean and Shipek 1978, Sparkman 1908, White 1962).

The Luiseño were Takic-speaking, and had rigid social structures due to their high population density (Bean and Shipek 1978). The Luiseño lived in sedentary and autonomous villages located near reliable water sources and high resource areas. Each village contained named places associated with food products, raw materials, or sacred beings (Bean and Shipek 1978). Named places were owned by either an individual, a family, a chief, or the collective group. Group economic activities were restricted to areas owned by the village, whereas familial gatherings were limited to family-owned areas, unless given express permission to hold such gatherings in areas other than their own (Bean and Shipek 1978). The concept of private property was important, and trespassing upon private areas was punished severely. A Luiseño ritual and ceremonial specialist maintained the knowledge of the various ceremonies and passed on the knowledge to only one heir. Such ceremonies included funerals and clothes burning ceremonies. The decimation of the population after European contact, without doubt, caused the loss of some spiritual specialists. Additionally, the reservation system interrupted the social organization and settlement patterns (Bean and Shipek 1978, Shipek 1986).

Settlements were typically located within valley bottoms, along streams, or along coastal strands near mountain ranges. Villages were often located in sheltered areas near good water supplies, in a defensive location, or on the side of warm thermal zone slopes. Each village contained named places associated with food products, raw materials, or sacred beings (Bean and Shipek 1978). Named places were owned by either an individual, a family, a chief, or the collective group. Group economic activities were restricted to areas owned by the village as a whole, whereas familial gatherings were limited to family-owned areas, unless given express permission to hold such gatherings in areas other than their own (Bean and Shipek 1978). The concept of private property was important to the Luiseño, and trespassing upon private areas was punished severely. Private property also included houses, capital equipment, treasure goods and ritual equipment, trade and ceremonial beads, eagle nests, songs, and other nonmaterial possessions. Privately owned property was either inherited patrilineally or transferred to another owner (Sparkman 1908, Bean and Shipek 1978).

The diverse ecological zones within the Luiseño territory provided a wide array of subsistence products. Principal game animals included deer, rabbit, jackrabbit, woodrat, mice, ground squirrels, antelope, valley and mountain quail, doves, ducks, and other birds. (Gifford 1918, Sparkman 1908, Bean and Shipek 1978). The most important gathered resource were acorns, and village locations were typically located near water sources for use in acorn leeching. Grass seeds were the next most abundant resource, in addition to manzanita, sunflower, chia, sage, lemonade berry, prickly pear, and pine nuts. Fire was used as a crop management technique as well as for community rabbit drives. Tools for the acquisition, storage, or preparation of food were highly varied and constructed from locally derived materials, with a few items acquired via trade from specific localities (steatite bowls from Santa Catalina Island, obsidian blanks or tools from either eastern or northern neighbors) (Bean and Shipek 1978). Hunting activities used either individual or group participation, using bows and arrows for larger game or curved throwing sticks, slings, traps, or pit type deadfalls for smaller animals.

3. HISTORIC CONTEXT

Riverside County history can be divided into three periods: the Spanish, Mexican, and American periods. The following summary is based on the City of Temecula's historic context (https://www.temeculaca.gov/150/History-of-Temecula). Additional historical information specific to the project area can be found in the *Historical / Archaeological Resources Survey Report Temecula Hospital Project, Tentative Parcel map No. 32468, City of Temecula, Riverside County, California* (CRM Tech 2004).

SPANISH PERIOD (1769-1822)

Along the coast of California, Spanish explorers began making expeditions between the mid-1500s and 1700s. In 1769, King Charles III of Spain charged the Franciscan Order to direct religious and colonization matters in assigned territories of the Americas. The Portolá Expedition set out that same year from Baja California with Captain Gaspar de Portolá, 64 soldiers, missionaries, Baja California Native Americans, and local civilians. The expedition established the Presidio of San Diego, a fortified military outpost, as the first Spanish settlement in Alta California. In July of 1769, while Portolá was exploring southern California, Franciscan Friar Junípero Serra founded Mission San Diego de Alcalá at Presidio Hill, the first of the 21 missions that would be established in Alta California by the Spanish and the Franciscan Order between 1769 and 1823. The Mission San Gabriel Archangel was established in 1771 and the Mission San Juan Capistrano was established in 1776. The mission of San Luis Rey de Francia was established in 1798 four miles up the San Luis Rey River from the coast and in 1816, an outpost of San Luis Rey was established at Pala, 20 miles upriver. An additional outpost, the San Bernardino estancia was established in 1819.

The first recorded Spanish contact with the Temecula region was by Franciscan Friar Juan Norberto de Santiago and Captain Pedro Lisalde who visited in October 1797 as part of an expedition sent by the Mission San Juan Capistrano to identify a site for a new mission. Santiago kept a journal of his travels and noted "Temecula…an Indian village." "Temecula" is reported to mean "the place of the sun."

MEXICAN PERIOD (1821-1846)

After years of sporadic rebellion and warfare, New Spain (Mexico and the California territory) won independence from Spain in 1821 marking the beginning of the Mexican Period. As the ports in California were opened to foreign ships the population near the coast grew. However, the inland valleys remained largely vacant of European settlers except for use as grazing lands for cattle. During the Mexican Period, the cattle industry grew in importance to become the leading industry in the region and the central focus of the Californio culture.

The Mexican Government continued the land grant system first began by Spain and granted several land grants as part of the ranch system. The Mexican government secularized the California missions in 1833, and much of the mission lands were included in the land grants. The Native Americans which had been captured as part of the mission system became eligible for Mexican citizenship, however this period continued the physical and cultural decline of the Native American population (Heizer 1978). At their peak, the 21 California missions controlled approximately 74,000 neophytes (Bolton 1917). By 1834, the year before secularization took the institution from the missionaries, only 17,000 natives remained within their domain (Heizer 1978, Monroy 1990).

The Project area at the intersection of the Temecula, Little Temecula, and Rancho Pauba land grants. The Rancho Temecula grant was allotted to Felix Valdez and the Rancho Pauba grant was allotted to Vicenta

Moraga in 1844. The smaller Rancho Little Temecula was allotted to Pablo Apis; Apis was a Luiseno and one of the few Native Americans to be granted land at the dissolution of the missions.

AMERICAN PERIOD (1848-PRESENT)

The US government first surveyed the area in the 1850s and noted the village of Temecula with approximately 30 thatched houses clustered around Pablo Apis' adobe. However, by 1859, Apis' adobe was the residence of two Euro Americans known as Holmen and Seman who had supposedly purchased the land from Apis. This transaction was later fictionalized in Helen Hunt Jackson's influential novel *Ramona*, written in 1884. During the Mexican-American War, the Temecula Massacre occurred in January 1847 during when Mexican soldiers trapped a group of local Native Americans in a canyon. The Mormon Battalion arrived in the area around January 25 and helped bury the victims in the Old Temecula Village Cemetery.

The signing of the Treaty of Guadalupe Hidalgo in 1848, ended the Mexican American War and marks the beginning of the American period, when California became a territory of the United States. California became the 31st state in 1850 and within three years the population of California had increased to more than 300,000.

The Treaty of Temecula was signed by US Indian agents and some remaining Native American inhabitants of Temecula Valley at Magee's Store in 1852 but was never ratified by the United States Senate. In September 1875, the Native American inhabitants who were still living on Pablo Apis' land grant of Little Temecula were forcibly evicted by local Euro-American settlers including Jose Gonzalez, Juan Murrieta, and Louis Wolf. This eviction was also fictionalized in *Ramona*. Wolf later married a mixed-race Native American woman named Ramona who partially inspired Helen Hunt Jackson. The Wolfs took over running Magee's Store in 1860. The Pechanga Reservation was established in 1882.

The Butterfield Overland Mail stagecoach route was established through Temecula in 1858 and Temecula's first post office established at the Magee Store in 1859. The Civil War brought an end to the Butterfield Stagecoach but regular rail service between National City and Temecula was established in 1882 by the California Southern Railroad.

On March 11, 1893, Riverside County was formed from an approximately 6,500 square miles of San Diego County and 560 square miles of San Bernardino County (Holmes 1912). Riverside County was formed primarily over political and tax issues between residents in San Bernardino and Riverside, and the displeasure of residents in the Temecula Valley area being too great a distance from the County seat in San Diego.

Cattle continued to dominate the southern California economy through the 1850s as a source of hides but for the more than 90,000 new residents lured to California by the Gold Rush beginning in 1848, cattle were now an important source of meat and other supplies. Cattle were at first driven along major trails or roads such as the Gila Trail or Southern Overland Trail, then were transported by trains where available. The cattle boom ended for southern California as neighbor states and territories drove herds to northern California at reduced prices (Cleland 2005). Walter Vail settled in Temecula Valley in 1904 and purchased huge tracts of land, including remnants of the Temecula, Little Temecula, and Rancho Pauba land grants. At its height, the ranch reached 87,500 acres. Vail's son Mahlon took over ranch operations upon his father's death in 1906. The Vail Ranch was instrumental in the development of Temecula Valley in the early 20th century as the local economy was dominated this ranch.

The Vails sold the ranch to Kaiser Development Company in 1964 who planned to develop Temecula Valley for suburban residents as Rancho California. Rapid suburban and urban development of the region followed throughout the 1970s and 1980s.

4. RESEARCH DESIGN

The Phase I cultural resource study was a systematic, intensive, non-sampling, non-collecting survey. The primary objectives with respect to prehistoric and historic archaeological resources are straightforward: to identify and document all of the resources that are detectable through surface observations. For the research design, the field requirements are (1) that survey coverage include all portions of the study area that can safely be covered and that offer some realistic prospects for containing identifiable resources (excluding, for instance, areas with very steep slopes, flooded areas, areas with no ground surface visibility, or areas where modern construction has destroyed or buried the natural ground surface), and (2) that the spatial extent and general character of any identified resources be documented according to the prevailing professional standards.

5. METHODS

Methods used to assess the presence or absence of cultural resources within the Project area included a search of existing records, archival research, and an intensive pedestrian archaeological field survey.

ARCHIVAL RESEARCH

The record search at Eastern Information Center at the University of California, Riverside in Riverside, CA was performed on April 19, 2022. Current site and previous project information available in the California Historical Resources Information System (CHRIS) Geographical Information System (GIS) inventory was also examined for known and recorded sites and surveyed areas within the vicinity of the project areas (Appendix B).

Historic aerial photographs and maps, provided by historicaerials.com and USGS Historical Topographic Map Explorer, of the Project area were examined.

Native American Heritage Commission Outreach

A record search of the Sacred Lands File held by the NAHC was requested on April 11, 2022 (Appendix C). The NAHC have not yet responded at the time of the writing of this report. However, it is assumed that the Sacred Lands Files search will be positive and that the area will be considered sensitive for cultural resources. This section will be updated upon receipt of the NAHC results. Correspondence with the NAHC is included in Appendix C.

FIELD SURVEY

The field survey was conducted on April 15, 2022, by ASM Assistant Archaeologist Michelle Hamilton. Field methods consisted of a pedestrian survey of the Project area by the archaeologist in transects spaced at 5-m intervals. Special attention was given to visible soils in areas devoid of vegetation or disturbed soils from bioturbation.

The Project area was photographed, and all visible soils were examined for cultural resources. If an artifact or feature was identified, the archaeologist would additionally scout the immediate vicinity to determine whether the item was isolated, associated with only a few other items, or part of a larger site deposit. Any isolates and sites were identified would be recorded. Archaeological isolates are distinguished from sites on the basis that isolates consist of three or fewer artifacts within a 50-m radius. All site and isolate locations would be recorded in Universal Transverse Mercator (UTM) coordinates using handheld GPS units. Sites would be plotted on proposed Project maps using NAD 83 UTM feet coordinates. Site information would be recorded on State of California Department of Parks and Recreation (DPR) 523 series forms. While the process of site documentation varies slightly depending on what kinds of artifacts and features were identified, at all sites the spatial boundaries would be delineated, site maps would be drawn, artifacts would be plotted, artifact inventories would be completed, and material types would be noted. All notes and photographs from the study are curated at ASM's office.

6. RESULTS

ARCHIVAL RESEARCH RESULTS

EIC Record Search Results

A record search of the Project area and a one-mile record search radius was requested on April 11, 2022. The records search identified 75 previously conducted cultural resources studies within 1 mile of the project area (Table 1). The project area was fully surveyed for cultural resources in 2004 (CRM Tech 2004).

Table 1. Summary of the Previously Conducted Cultural Resources Studies within the One-Mile Record Search Radius.

Report Number	Year	Title	Author(s) Publisher
RI-00111	1973	Archaeological Impact Evaluation: Proposed Pala Village Development Rancho California	Leslie E. Wildesen Archaeological Research Unit, UC-Riverside
RI-00162	1989	Archaeological Test Excavations at CA-RIV-1729, Temecula, California	Christopher Drover and Diana Pinto Christopher Drover Consulting
RI-00248	1987	Vail Ranch, Cultural Resources Assessment	Christopher E. Dover
RI-00249	1977	A Cultural Resource Inventory of a 700 Acre Parcel (Tentative Tract 9617) Near Temecula, California	N. Nelson Leonard, III and Richard Lando Archaeological Research Unit, UC-Riverside
RI-00328	1978	Environmental Impact Evaluation: Archaeological Assessment of Parcel 11, 984	Larry L. Bowles
RI-00543	1981	Old Temecula: a Historical European-Indian Village, An Archaeological Test Phase of Riv-364, Wolf Valley Specific Plan	Christopher E. Dover Albert Webb Associates
RI-00544	1988	Wolf Valley Rancho California Cultural Resources Assessment, Great American Development Company	Christopher E. Dover
RI-00545	1979	An Archaeological Assessment of Tentative Tract No. 3983	Larry L. Bowles and Jean A. Salpas
RI-00547	1998	Archaeological Excavations of Old Temecula Village Riv-364, a Post Contact Luiseno Village.	Christopher E. Dover, Richard Cerreto, Stephen Oneil, Frank Fenega, Barbara Baker, and Paul Langenwalter
RI-00623	1979	Preliminary Archaeological Assessment of Four Alternate Sites for the New Temecula/Murrieta/Rancho California Airport, Riverside County, California	Renee Giansanti Archaeological Research Unit, UC-Riverside
RI-00743	1979	Environmental Impact Evaluation: An Archaeological Assessment of Tentative Parcel 13734, East of Temecula, Riverside County, California	Stan Wilmoth Archaeological Research Unit, UC-Riverside
RI-00968	1980	Environmental Impact Evaluation: Archaeological Assessment of Tentative Parcel 15211, Riverside County, California	Christopher E. Drover

Report Number	Year	Title	Author(s) Publisher
RI-01048	1980	Cultural Resource Inventory and Impact Assessment for the Kacor/Rancho California Property	Christopher W. White ASM, Inc.
RI-01201	1981	Environmental Impact Evaluation: An Archaeological Assessment of Tentative Parcel 16962, Southeast of Temecula in Riverside County, California	Deborah Moore Archaeological Research Unit, UC-Riverside
RI-01592	1979	An Archaeological Assessment of Parcel 12787	Larry L. Bowles and Jean Salpas
RI-01857	1984	An Archaeological Assessment of TT 19872, Temecula Area of Riverside County, California	Robert M. Yohe II Archaeological Research Unit, UC-Riverside
RI-01864	1984	An Archaeological Assessment of Tentative Parcel 20385, Temecula Area, Riverside County, California	Stan Wilmoth Archaeological Research Unit, UC-Riverside
RI-02169	1987	Rancho Villages Assessment District Cultural Resources Element	Christopher E. Drover
RI-02260	1988	An Archaeological Assessment of Vail Meadows Specific Land Use Plan	Christopher Drover Christopher Drover Consulting
RI-02261	1988	The Tonan Ranch Cultural Resources Assessment	Christopher E. Drover
RI-02262	2000	Letter Report: Tonan Ranch, CA-RIV-3410.	Christopher Drover Christopher Drover Consulting
RI-02376	1988	An Archaeological Test Excavation of RIV-3390 and RIV-3391-H Vail Meadows Specific Land Use Plan	Christopher E. Drover, Karen Swope, and Richard Cerreto
RI-02417	1989	Test Excavations of the McGee Store (RIV-2189)	Christopher E. Drover and C. Parker
RI-02418	1991	Archaeological Data Collection: Magee Store Adobe, ca. 1859-1875, RIV-2189, Old Temecula, California	Christopher Drover, Diana Pinto, and Leland Bibb
RI-02419	1989	Test Excavations of RIV-1520, The Pablo Apis Adobe	Christopher E. Droverand Cole Parker
RI-02420	1989	Archaeological Data Collection: Apis Adobe, CA. 1845-1875, RIV-1520, Old Temecula, California	Christopher Drover, Karen Swope, and Leland Bibb
RI-02421	1988	The Tonan Ranch - Cultural Resources Assessment; An Archaeological Test Excavation of RIV-3410	Christopher E. Drover
RI-02422	1991	Data Recovery at Tonan Ranch, CA-RIV-3410	Christopher Drover and Diana Pinto Christopher Drover Consulting
RI-02522	1989	The Murdy Ranch Cultural Resources Assessment.	Christopher E. Drover
RI-02757	1990	An Archaeological Assessment of Tentative Tract #21067, Rancho California, Riverside County, California	James Brock Archaeology Advisor Group

Report Number	Year	Title	Author(s) Publisher
RI-03218	1991	The Indian Cemetery at Old Temecula [Slightly Revised Edition]	Kevin Hallaran, Allene Archibald, Lowell J. Bean, and Sylvia B. Vane
RI-03219	1994	Archaeological Field Inspection and Site Recording at the Old Temecula Cemetery (CA-RIV-115/H)	Bruce Love CRM Tech
RI-03436	1992	Cultural Resources Assessment: Pala Road Bridge Sewer and Road Realignment Project at Temecula Creek, Temecula Area of Riverside County, California	C.J. Peterson, Rachel Greeley, and Bruce Love Archaeological Research Unit, UC-Riverside
RI-03439	1997	Archaeological Survey Report for the Temecula Creek (Pala Road) Bridge in the City of Temecula Riverside County, California 08-RIV-CR-Pala Road	Phillip de Baros, Professional Archaeological Services
RI-03495	1989	Archaeological Test Excavations of Vail Ranch (RIV-1522)	Bruce Love CRM Tech
RI-04095	1998	(Letter Report) Cultural Resources Investigation on the Vail Ranch Property	Bruce Love CRM Tech
RI-04381	2000	Cultural Resources Reconnaissance for the Rancho Community Church, Temecula, Riverside County, California.	Joan C. Brown RMW Paleo Associates
RI-04404	2000	Final Cultural Resources Inventory Report for the Williams Communications, Inc., Fiber Optic Cable System Installation Project, Riverside to San Diego, California VOL I-IV.	Jones and Stokes Associates, Inc.
RI-04647	2003	A Phase I Cultural Resources Assessment of APN 961-010-016, 018-020, 25.50 Acres of Land in the City of Temecula, Riverside County, California	Jean Keller
RI-04648	1996	Historic Resources Analysis of the Vail Ranch Headquarters, Located Near Temecula, Riverside County, California	Jean A. Keller
RI-04689	2003	Cultural Resources Evaluation of CA-Riv-6499 Located in Temecula, Riverside County, California	Joan Brown SWCA Environmental Consultants
RI-04863	2001	A Phase I Archaeological Resource Survey and a Paleontological Records Review of PP16699, a 2.31-Acre Commercial Project Located at Highway 79 and George Cuishman Court, Temecula Area, County of Riverside, California	Michael Dice, E. Bruce Lander, and Leslie Nay Irish L & L Environmental, Inc.
RI-04864	2002	Phase IV Archaeological and Monitoring Results at PP16699, a 2.31-Acre Commercial Project Located at Highway 79 and George Cuishman Court, Temecula Area, County of Riverside, California	Michael Dice and Leslie Nay Irish L & L Environmental, Inc.

Report Number	Year	Title	Author(s) Publisher
RI-04865	2001	A Phase I Archaeological Resource Survey and a Paleontological Records Review of the Temecula Marketplace Project, Located Near Highway 79 and Avenida de Missiones, City of Temecula, California	Michael Dice, E. Bruce Lander, and Leslie Nay Irish L & L Environmental, Inc.
RI-04914	2003	A Phase I Archaeological Survey Report on Wolf Store Retail Park, APN#S 960-020-031 and 040, HWY 79 and Wolf Store Road, Temecula, County of Riverside, California	Leslie Nay Irish, Barbara Ann Hall, Anna M. Hoover, and Julia Fox L & L Environmental, Inc.
RI-05027	2000	A Phase I Cultural Resources Investigation of the Vesta Telecommunications, Inc. Fiber Optic Alignment, Riverside County to San Diego County, California	Jeanette A. McKenna
RI-05108	2003	Cultural Resources Survey of 21.47 Acres, APN# 961-010-014 and APN# 961-010-015 Temecula, California	Applied EarthWorks, Inc.
RI-05282	2005	Cultural Resource Assessment Trumark Parcel (TT 33891) City of Temecula, Riverside County, CA	Riordan Goodwin LSA Associates
RI-05427	2004	A Phase I Cultural Resources Assessment of Tentative Tract Map 31711, +/-2.89 Acres of Land in the City of Temecula, Riverside County, California	Jean Keller
RI-05430	2001	Archaeological Monitoring Report: Middle School Site #5 (Wolf Creek), City of Temecula, Riverside County, California	Bruce Love, Harry Quinn, and Michael Hogan CRM Tech
RI-05535	2005	A Phase I Cultural Resources Assessment of Tentative Tract Map 31946, +/-46.58 Acres of Land in Temecula, Riverside County, CA	Jean Keller
RI-05992	2003	Archaeological Testing and Evaluation: Western Portions of Site CA-Riv-3410/H, Temecula Marketplace project, City of Temecula, Riverside, CA	Mariam Dahdul, Harry M. Quinn, and Adrian Sanchez Moreno CRM Tech
RI-06323	2004	Historical/Archaeological Resources Survey Report: Temecula Hospital Project, Tentative Parcel Map No. 32468, City of Temecula, Riverside County, California	Bai Tang, Michael Hogan, Deirdre Encarnacion, John J. Eddy, and Casey Tibbet CRM Tech
RI-06790	2006	An Archaeological and Paleontological Mitigation-Monitoring Report on Wolf Creek, Tract 29798, +/- 175 Acres, City of Temecula, Riverside County, California	Anna M. Hoover and Brian Dailey L & L Environmental, Inc.
RI-06881	2007	Cultural Resources Monitoring of the Temecula Lane Project, Tentative Tract Map 31946, City of Temecula, Riverside County, California.	Christopher Corey and Cindy Arrington SWCA Environtmental Consultants
RI-07090	2007	A Phase I Archaeological Survey Report for, Tract 3752, APN 959-050-011, +/- 2.76 Acres, City of Temecula, Riverside County, California.	Anna M. Hoover, L & L Environmental, Inc.

Report Number	Year	Title	Author(s) Publisher
RI-07092	2006	An Archaeological and Paleontological Mitigation-Monitoring Report for Tract 30177 Vail Ranch Towne Center, City of Temecula, Riverside County, California	Leslie Nay Irish, Anna M. Hoover, Kristie Blevins, and Brain C. Dailey L & L Environmental, Inc.
RI-07176	2002	Cultural Resource Assessment: AT&T Wireless Services, Facility No. 08022R, Riverside County, California.	Curt Duke LSA Associates
RI-07387	2006	Phase I Cultural Resources Assessment, Temecula Lane 2 Property, City of Temecula, Riverside County, California.	Kenneth J. Lord Michael Baker Associates
RI-07489	2007	Letter Report: Cultural Resource Records Search and Site Visit Results for Verizon Telcommunications Facility Candidate "Redhaw" 31524 Rancho Pueblo Road, Temecula, Riverside County, California	Wayne H. Bonner and Marnie Aislin-Kay
RI-07611	2008	Archaeology Study of Vail Ranch Restoration Plan (4 Acres), City of Temecula, Riverside, California	Beth Padon Discovery Works, Inc.
RI-08387	2009	Letter Report: Cultural Resources Assessment of the Distributed Antennae Communications System Porject in the Cities of Temecula and Murrieta, Riverside County, California (BCR Consulting Project No. SYN0903).	David Brunzell BRC Consulting
RI-08485	2009	Archaeological Survey for Southern California Edison's Service Pole Installations in Temecula, Murrieta, and Lake Elsinore, Riverside County, California	Kurt Heidelberg AECOM
RI-08759	2012	Letter Report: Historical, Archaeological, and Paleontological Monitoring Rancho Community Reformed Church Sports Field Project, Site CA-RIV-6499, City of Temecula, Riverside County, California, CRM Tech Contract No. 2600	Michael Hogan CRM Tech
RI-08881	2012	An Archaeological Mitigation-Monitoring Report for the Temecula Creek Project	Anna M. Hoover, Kristie R. Blevins, Jim McPherson, and Barbara Loren-Webb L & L Environmental, Inc.
RI-09254	2013	Final Archaeological Resources Monitoring Project Report for the Villages at Paseo Del Sol Project, Riverside County, California	Michael Vader ESA
RI-09257	2011	Cultural Resources Assessment of the NewPath Networks, LLC DAS Project in the Cities of Murrieta and Temecula, Riverside County, California (BCR Consulting Project No. SYN0901)	David Brunzell BRC Consulting

Report Number	Year	Title	Author(s) Publisher
RI-09346	2014	A Phase IV Cultural Resources Monitoring Report of United Surgery Center PA13-0166 APN 959-070-031 Grading Permit No. LD13-085GR 1.01 Acres of Land Located at 31469 Rancho Pueblo Road, Temecula Riverside County, California USGS Murrieta, California Quadrangle, 7.5' Series Section 17, Township 8 South, Range 2 West, SBM	Jean Keller
RI-09380	2015	Historical/Archaeological Monitoring Program Rancho Community Reformed Church Sports Field Project Site	David Ballester CRM Tech
RI-09554	2012	Bella Linda Residential Project, Temecula, Riverside County, California	Madeleine Bray, Chris Lockwood, and Robert Ramirez ESA
RI-09940	2017	Historical/Archaeological Resources Survey Report: Margarita & De Portola Project, Assessor's Parcel Numbers 959-050-004 and -009, City of Temecula, Riverside County, California	Bai "Tom; Tang, Ben Kerridge, Daniel Ballester, and Nina Gallardo CRM Tech
RI-09986	2016	Cultural Resources Assessment Mexico Café Development Plan Temecula, Riverside County, California	David Brunzell BRC Consulting
RI-10106	2017	Cultural Resources Assessment Pechanga Parkway Widening Project Temecula, Riverside County, California	David Brunzell BRC Consulting
RI-10722	2009	Cultural Resources Records Search Results for Verizon Wireless Candidate "Temecula Creek" 44618 Pechanga Parkway, Temecula, CA 92592	Wayne H. Bonner and Arabesque Said
RI-10724	2010	Archaeological Sensitivity Assessment Temecula Creek 44618 Pechanga Parkway, Temecula, Riverside County, CA EBI Project #61097011	Aniela Travers EBI Consulting

The records search identified 29 previously recorded cultural resources within 1 mile of the project area (Table 2). A total of five previously recorded cultural resources, P-33-021292, P-33-021293, P-33-021294, P-33-021295, and P-33-021298, were recorded within the project area. These cultural resources consisted of isolated prehistoric finds identified during the initial grading of the project area in 2011. The isolates were removed during the 2011 grading and are no longer present within the project area.

Table 2. Summary of Previously Recorded Cultural Resources Within the One-Mile Record Search Radius

Primary Number	Trinomial	Type	Age	Description
P-33-000115	CA-RIV-000115	Site	Protohistoric	Luiseño cemetery, burial place of 1847 Temecula Massacre victims

Primary Number	Trinomial	Type	Age	Description
P-33-000364	CA-RIV-364	Site	Protohistoric	Late prehistoric habitation site with possible adobe
P-33-001520	CA-RIV-1520	Site	Protohistoric	Apis Adobe, historic artifacts, groundstone fragments
P-33-001522	CA-RIV-1522	Site	Historic	Historic ranch complex with adobe structure, historic ceramics
P-33-001728	CA-RIV-1728	Site	Prehistoric	Groundstone scatter and midden soil
P-33-001729	CA-RIV-1729	Site	Prehistoric	Prehistoric village site with flaked stone, ground stone, ceramics, fire-affected rock, bone, shell
P-33-002189	CA-RIV-2189	Site	Historic	Butterfield Stage Stop, reputed signing site of the Treaty of Temecula; historic artifact scatter
P-33-003391	CA-RIV-3391	Site	Multicomponent	Prehistoric ceramics, bone, fire-affected rock; historic ceramics
P-33-003410	CA-RIV-3410	Site	Multicomponent	Prehistoric flaked stone, projectile points, pipe fragments, ground stone, human remains; historic Vail Ranch complex
P-33-003411	CA-RIV-3411	Building	Historic	Two story ranch house
P-33-003650	CA-RIV-3650	Site	Prehistoric	Groundstone scatter and midden soil
P-33-007775	n/a	Building	Historic	Pauba Ranch complex
P-33-007777	n/a	Building	Historic	Pauba Ranch Cattle Loading Shoot
P-33-007883	CA-RIV-5845	Site	Prehistoric	Groundstone and fire-affected rock scatter
P-33-009753	CA-RIV-6499	Site	Prehistoric	Groundstone scatter
P-33-011005	CA-RIV-6645	Site	Prehistoric	Flaked and ground stone scatter, fire-affected rock, possible hearths, marine shell
P-33-011811	n/a	Isolate	Prehistoric	Isolated metate fragment
P-33-012731	n/a	Isolate	Prehistoric	Isolated handstone fragment
P-33-012732	n/a	Isolate	Historic	Isolated bottle neck fragment
P-33-021292	**n/a**	**Isolate**	**Prehistoric**	**Isolated basalt flake**
P-33-021293	**n/a**	**Isolate**	**Prehistoric**	**Isolated basalt flake**
P-33-021294	**n/a**	**Isolate**	**Prehistoric**	**Isolated tested chert cobble**
P-33-021295	**n/a**	**Isolate**	**Prehistoric**	**Isolated metate fragments**
P-33-021298	**n/a**	**Isolate**	**Prehistoric**	**Isolated metate fragments**
P-33-024088	n/a	Isolate	Prehistoric	Isolated handstone fragment
P-33-024089	n/a	Isolate	Prehistoric	Isolated handstone fragment
P-33-024090	n/a	Isolate	Prehistoric	Isolated handstone fragment
P-33-024091	n/a	Isolate	Prehistoric	Isolated handstone and metate fragments

Resources in bold area located within the project area.

A search was made of the Built Environment Resources Directory for Riverside County held by the California Office of Historic Preservation with negative results within the Project area. Multiple historic buildings associated with the historic of Temecula including the Vail Ranch Dam, the Pauba Ranch and associated buildings, Wolf's Store, and the Pauba Ranch cattle shoot are located within the 1-mile Records Search area.

The 2004 archaeological survey report for the project identified that the GLO Maps from 1859 and 1872 show that within the vicinity of the project area was the prehistoric and ethnohistoric village of Temecula, several adobe homes, the road to Fort Yuma and the Road to the San Luis Rey Mission, a Native American graveyard the remains of a sweathouse and a store. (CRM Tech 2004).

NAHC Record Search Results

A record search of the SLF held by the NAHC was requested on April 15, 2022. At the time of writing, the NAHC has not responded. It is assumed that the record search of the SLF will be positive due to the location of the Temecula Village, the Apis adobe, and the identification of human remains within the 1-mile record search area. This section will be updated upon receipt of the SLF search.

Historic Map and Aerial Photograph Research Results

In addition to historical documents requested from the EIC, ASM reviewed historic United States Geologic Survey (USGS) topographic maps and aerial photographs. Historical topographic maps were reviewed using USGS Historical Topographic Map Explorer, and aerial imagery was accessed via HistoricalAerials.com, part of NETROnline.com.

Topographic maps depicting the study area are available from 1950, 1959, 1966, 1970, 1984, 1988, 200, 2012, 2015 and 2018. The map from 1950 shows the study area and surrounding vicinity as undeveloped except for several established roads including California Highway 79/ Temecula Parkway. The 1984 topographic map shows additional roads to north of the project area and a small number of houses along these roads. The 2000 topographic map shows significantly more development with additional roads and housing subdivisions to the north and south of the project area. The San Diego Aqueduct to the west of the project area and a small retaining pond to the north of the project area is shown on the earliest topographic map. Dense housing developments to the north and south of the project area along the Temecula Creek floodplain appear in the 1980s, but the steep canyons beyond the floodplain are more sparsely developed.

Aerial imagery for the project area and surrounding vicinity is available as early as 1938. Imagery from 1938 show the project area and immediately surrounding area along the Temecula Creek floodplain as being used for agriculture with straight plow or disc lines evident. By 1978, De Portola Road has been laid out and the first housing subdivision plots are visible, but the project area is still being used for agriculture. Dense subdivision development along the Temecula Creek floodplain is evident by 1995. The project area is either being used for agriculture or lying fallow until 2012 when the Temecula Valley hospital is built. The modern layout of the project area is evident in the 2014 aerial. Throughout all images from 1938 to 2012, the study area displays no visible evidence of being developed for either residential or commercial use, even though surrounding parcels are developed into single-family residential homes and commercial uses.

FIELD SURVEY RESULTS

The project area lies upon a south-facing slope of a low-rolling terrace that is bordered by Highway 79/ Temecula Parkway on the south. The parcels immediately north of the project area have been developed into single-family residences, and the parcels to the east and west have been developed into commercial

structures. South of the hospital, across Highway 79/ Temecula Parkway, is a residential subdivision and commercial strip mall. The undeveloped portions of the project area were heavily disturbed and graded. On site vegetation primarily consisted of non-native grasses and invasive weeds. The project area was transected in 10-meter intervals. Ground surface visibility varied from good (50-75%) to poor (0-25%) throughout the project area. Modern trash was identified throughout the project area. No previously unrecorded cultural resources were observed. The proposed project components and photo points taken during the field survey is shown in Figure 2, photographs of current conditions are found in Figure 3-17.

The five previously recorded cultural resources, P-33-021292, P-33-021293, P-33-021294, P-33-021295, and P-33-021298, within the project area were removed during the 2011 grading of the project area and are no longer present within the project area, therefore they were not relocated during the current survey.



Figure 2. Proposed project components and photo points.



Figure 3. Project overview 1, from northwest corner of proposed Parking Lot #1, facing east.



Figure 4. Project overview 2, from east boundary of proposed Parking Lot #1, facing west.



Figure 5. Project overview 3, from southwest corner of proposed Parking Lot #, facing north-northwest.



Figure 6. Project overview 4, from west side of proposed Hospital Tower #2, facing southeast.



Figure 7. Project overview 5, from east side of project area, facing west.



Figure 8. Project overview 6, from northeast corner of proposed Parking Lot #2, facing southwest.



Figure 9. Project overview 7, from proposed east boundary of Parking Lot #2, facing west-southwest.



Figure 10. Project overview 8, from southeast corner of proposed Parking Lot #2, facing west.



Figure 11. Project overview 9, from southwest corner of proposed Parking Lot #2, facing north-northeast.



Figure 12. Project overview 10, from northwest corner of proposed Parking Lot #2, facing east.



Figure 13. Project overview 11, from southwest corner of Proposed Hospital Tower #2, facing southeast.



Figure 14. Project overview 12, from southeast corner of proposed Behavioral Health Building, facing north-northwest.



Figure 15. Project overview 13, from southwest corner of proposed Behavioral Health Building, facing north-northeast.



Figure 16. Project overview 14, from northwest corner of proposed Parking Lot #5, facing south-southeast.



Figure 17. Project overview 15, from west side of proposed Parking Structure, facing west.

7. RECOMMENDATIONS AND CONCLUSIONS

The archaeological survey was negative. The records search of the Sacred Lands File held by the NAHC has not been received but is assumed to be positive. The CHRIS record search for the project area identified five cultural resources, prehistoric isolates P-33-021292, P-33-021293, P-33-021294, P-33-021295, and P-33-021298, previously recorded within the project area. These prehistoric isolates were removed during the 2011 grading of the project and are no longer present within the project area. Therefore, there are no historical resources according to CEQA present within the Project area and implementation of the Project will not have an effect on historical resources.

The project area is located in an area known to be a center of both Native American and EuroAmerican settlement during the late 18th and early 19th centuries. The project area yielded subsurface artifacts during the initial hospital construction and other projects in the vicinity have also yielded subsurface deposits. Therefore, archaeological and Native American monitoring is recommended for any new ground disturbance and any ground disturbance which may extend deeper than the previous 2011 mass grading or has potential to encounter native soil.

If human remains are found on the project proponent shall comply with State Health and Safety Code Section 7050.5. Pursuant to State Health and Safety Code Section 7050.5, if human remains are encountered, no further disturbance shall occur until the Riverside County Coroner has made the necessary findings as to origin. Further, pursuant to Public Resources Code Section 5097.98 (b), remains shall be left in place and free from disturbance until a final decision as to the treatment and their disposition has been made. If the Riverside County Coroner determines the remains to be Native American, the Native American Heritage Commission shall be contacted by the Coroner within the period specified by law (24 hours). Subsequently, the Native American Heritage Commission shall identify the "Most Likely Descendant." The Most Likely Descendant shall then make recommendations and engage in consultation with the property owner concerning the treatment of the remains as provided in Public Resources Code Section 5097.98.

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APPENDICES

APPENDIX A: PERSONNEL QUALIFICATIONS

Shelby Castells, M.A., RPA

Principal Investigator

Total Years of Experience: 16

Education:

M.A. 2010/Anthropology/San Diego State University
B.A. 2003/Anthropology/University of California, San Diego

Registrations:

2010-current Register of Professional Archaeologists (#3748180)

Professional Profile:

Ms. Castells is an archaeological Project Manager and Principal Investigator with experience with all types of cultural resource studies. She has over sixteen years of experience in archaeology and cultural resource management in Southern California. She has been the Principal Investigator and Project Manager for numerous survey, monitoring, testing, and data recovery projects within the counties of San Diego, Imperial, Orange, Riverside, San Bernardino, and Kern. Ms. Castells has extensive experience providing regulatory compliance for CEQA, NEPA, NHPA, NAGPRA, and local guidelines and regulations. Ms. Castells is a Registered Professional Archaeologist, and exceeds the Secretary of the Interior Professional Qualifications Standards for Archaeology. Her interests focus on historical archaeology and the regional history and prehistory of Southern California.

Selected Project Experience:

Environmental Services and Master Services Agreement Support, San Diego, Orange, Riverside and Imperial counties, CA
Project Manager
CLIENT: San Diego Gas & Electric Company
Conducted preconstruction surveys, compliance monitoring, and strategy meetings for general operations and maintenance work conducted on gas/electrical transmission, gas/electrical distribution, and substations. This includes several hundred varied tasks covering small to large projects and all agency and Tribal groups located in in SDG&E's service area. Tasks include coordination of archaeological and Native American monitors, CRHR/NHRP/RPO testing, data recovery, contractor and subcontractor coordination, as well as, Tribal and agency consultation and field meetings. Recently this included portions of the Fire Resource Mitigation (FiRM) Program. Also provided permitting support for PEA and EIR/EIS development included drafting and preparing sections of documents and QA/QC review.

City of San Diego Cultural and Paleontological Resources As-Needed Environmental Consulting Agreement (R-309919/H146284) for the Utilities Undergrounding Program, Transportation and Storm Water Department, San Diego County, CA
Principal Investigator / Project Manager
CLIENT: Dudek
At a previous firm, provided project management and principal investigator support for over 15 task orders for the City of San Diego's utilities undergrounding program. Conducted cultural resources inventories including record searches and archaeological surveys to identify project areas which may contain cultural resources in support of multiple MNDs and a programmatic EIR. Recommended mitigation measures including resource testing and evaluation, avoidance, and construction monitoring. Prepared data recovery plans for resources which will be impacted by the projects. Worked with the City and contractors to fulfill mitigation measures including construction monitoring, resource identification, recordation, and evaluation. City of San Diego, Transportation and Storm Water Department was the lead agency.

City of San Diego As-Needed Environmental Services Contract for the Transportation and Storm Water Department (H176989), San Diego County, CA
Principal Investigator / Project Manager
CLIENT: Environmental Science Associates
At a previous firm, provided project management and principal investigator support for multiple task orders for the City of San Diego Transportation and Storm Water Department for work within the City's Municipal Separate Storm Sewer System. Project work was in compliance with CEQA, NEPA, and Section 106 of the NHPA. Conducted cultural resources inventories including record searches and archaeological surveys to identify project areas which may contain cultural resources in support of multiple environmental documents. Recommend mitigation measures including resource testing and evaluation, avoidance, and construction monitoring. Conducted subsurface testing of cultural resources and evaluate resources to the CRHR and under City Guidelines to identify if the projects will have an effect on the environment. Worked with the City and contractors to fulfill mitigation measures including construction monitoring, resource identification, recordation, and evaluation. City of San Diego, Transportation and Storm Water Department was the lead agency.

City of San Diego Public Utilities Department As-Needed Environmental Services Contract (H166750), San Diego County, CA
Principal Investigator / Project Manager
CLIENT: Helix Environmental Planning, Inc.
At a previous firm, provided project management and principal investigator support for multiple task orders for the City of San Diego Public Utilities Department for work as-needed cultural resources support. Project work in compliance with CEQA, NEPA, and Section 106 of the NHPA. Conducted cultural resources inventories including record searches and archaeological surveys to identify project areas which may contain cultural resources in support of multiple environmental documents. Recommended mitigation measures including resource testing and evaluation, avoidance, and construction monitoring. Worked with the City and contractors to fulfill mitigation measures including construction monitoring, resource identification, recordation, and evaluation. City of San Diego, Public Utilities Department was the lead agency.

City of San Diego Pure Water Project Archaeological and Native American Monitoring for the Morena Conveyance Northern Alignment, San Diego County, CA
Principal Investigator / Project Manager
CLIENT: Jacobs
At a previous firm, served as Principal Investigator and Project Manager for the archaeological and Native American monitoring program for the Pure Water Project Morena Conveyance Northern Alignment (B3), which consisted of the installation of over eight miles of new pipeline, in compliance with the Project's Mitigation Monitoring and Reporting Program. Managed the cultural resources monitoring including communication with multiple City of San Diego staff, contractors, and monitors for ground disturbing activities during night and day work. Identify, record, and evaluate cultural resources discoveries for eligibility to the CRHR and significance under CEQA. Prepared daily, weekly and monthly monitoring and compliance summaries. City of San Diego Department of Public Services was the lead agency.

City of San Diego Pure Water Project Archaeological and Native American Monitoring for the Morena Wastewater Pump Station, San Diego County, CA
Principal Investigator / Project Manager
CLIENT: Jacobs
At a previous firm, served a Principal Investigator and Project Manager for the archaeological and Native American monitoring program for the Pure Water Project Morena Wastewater Pump Station, which consisted of the construction of a new pump station and one-mile of pipeline, in compliance with the Project's Mitigation Monitoring and Reporting Program. Managed the cultural resources monitoring including communication with multiple City of San Diego staff, contractors, and monitors for ground disturbing activities during night and day work. Identified, recorded, and evaluated cultural resources discoveries for eligibility to the CRHR and significance under CEQA. Prepared daily, weekly, and monthly

monitoring and compliance summaries. City of San Diego Department of Public Services was the lead agency.

City of San Diego Pure Water Project Archaeological and Native American Monitoring for the North City Pure Water Pipeline and AC Water Group Job 1038, San Diego County, CA
Principal Investigator / Project Manager
At a previous firm, served as Principal Investigator and Project Manager for the archaeological and Native American monitoring program for the Pure Water Project, North City Pure Water Pipeline and AC Water Group Job 1038, which consists of the installation of over ten miles of new pipeline, in compliance with the Project's Mitigation Monitoring and Reporting Program. Managed the cultural resources monitoring including communication with multiple City of San Diego staff, contractors, and monitors for ground disturbing activities during night and day work. Identified, recorded, and evaluated cultural resources discoveries for eligibility to the CRHR and significance under CEQA. Prepared daily, weekly and monthly monitoring and compliance summaries. City of San Diego Department of Public Services was the lead agency.

Archaeological and Native American Monitoring of the UCSD Hillcrest Campus Phase 1A Project, San Diego County, CA
Principal Investigator / Project Manager
CLIENT: UC San Diego Campus Planning
At a previous firm, served as Principal Investigator and Project Manager for the archaeological and Native American monitoring program for the Hillcrest Campus improvements project. Managed the archaeological monitoring of the Project's construction during the initial ground disturbance and grading of the Project area. Identified, documented, and evaluated for significance under CEQA, to the CRHR, multiple historic trash scatters. Performed evaluation testing on the archaeological deposits. Documented cultural resources on DPR 523 forms. Provided a technical report with the results of the monitoring, testing, and evaluation, including an artifact analysis and historic research. The University of California Regents was the lead agency.

Phase I Cultural Resources Assessment Report for the Snake Canyon Chula Vista Brush Management II Grant, San Diego County, CA
Principal Investigator / Project Manager
CLIENT: Urban Corps of San Diego County
At a previous firm, conducted a Phase I cultural resources inventory and survey and prepared a technical report in support of the brush management project's CEQA environmental document, including the creation of mitigation measures for cultural resources and Tribal Cultural Resources. Chula Vista was the lead agency.

Phase I Cultural Resources Assessment Report for the Highway 74 and Allan Street Project, APN 377-372-036-8, Lake Elsinore, Riverside County, CA
Principal Investigator / Project Manager
CLIENT: McKenna Lanier Group, Inc.
At a previous firm, conducted a Phase I cultural resources inventory and survey and prepared a technical report in support of the project's environmental document, including the creation of mitigation measures for cultural resources and Tribal Cultural Resources. Riverside County was the lead agency.

Archaeological and Native American Monitoring Program for the Villas at Mission San Luis Rey Project, San Diego County, CA
Principal Investigator / Project Manager
CLIENT: Oppidian
At a previous firm, served as Principal Investigator and Project Manager for the archaeological and Native American monitoring for a residential development project in compliance with the Project's Mitigation Monitoring and Reporting Program. Project is located within a NRHP listed cultural resource associated with the Mission San Luis Rey. Identified, recorded, and evaluated cultural resources associated with the

Mission San Luis Rey, including a mission era adobe wall feature. Prepared a technical report. City of Oceanside was the lead agency.

Phase I Archaeological Resources Survey and Evaluation Report for the Nirvana Business Park Project, 821 Main Street, San Diego County, CA
Principal Investigator / Project Manager
CLIENT: McKenna Lanier Group, Inc.
At a previous firm, conducted a Phase I cultural resources inventory and survey and prepared a technical report in support of the industrial development project's environmental document in compliance with CEQA. Identified, recorded, and evaluated several cultural resources within the Project area and prepared a technical report, including the creation of mitigation and avoidance measures. The cultural resources study was conducted in compliance with CEQA and City Guidelines. City of Chula Vista was the lead agency.

Phase I Archaeological Resources Survey and Evaluation Report for the Shinohara Industrial Project, 517 Shinohara Lane, San Diego County, CA
Principal Investigator / Project Manager
CLIENT: McKenna Lanier Group, Inc.
At a previous firm, conducted a Phase I cultural resources inventory and survey and prepared a technical report in support of the industrial development project's environmental document in compliance with CEQA. Prepared a technical report, including the creation of mitigation and avoidance measures. The cultural resources study was conducted in compliance with CEQA and City Guidelines. City of Chula Vista was the lead agency.

Archaeological Resources Survey for the Mulberry Drive Drainage Improvements Project, San Diego County, CA
Principal Investigator / Project Manager
CLIENT: Kimley-Horn & Associates, Inc.
At a previous firm, conducted a Phase I cultural resources inventory and survey for the installation of new sewer and storm water infrastructure project and prepared a technical report in support of the project's CEQA document. City of San Marcos was the lead agency.

Phase I Cultural Resources Assessment Report for the 3450 Clairemont Drive Project, San Diego County, CA
Principal Investigator / Project Manager
CLIENT: KLR Planning, Inc.
At a previous firm, conducted a Phase I cultural resources inventory and survey and prepared a technical report in support of the project's environmental document, including the creation of mitigation measures for cultural resources and Tribal Cultural Resources. the cultural resources study was conducted in compliance with CEQA and City Guidelines. City of San Diego was the lead agency.

Archaeological and Native American Monitoring of the UCSD Ridge Walk Improvement Project, San Diego County, CA
Principal Investigator / Project Manager
CLIENT: UC San Diego Campus Planning
At a previous firm, served as Principal Investigator and Project Manager for the archaeological and Native American monitoring program for the campus improvements project. Managed the archaeological monitoring of the Project's construction during the initial ground disturbance and grading of the Project area. Identified, documented, and evaluated for significance under CEQA, to the CRHR, multiple historic trash scatters. Performed evaluation testing on the archaeological deposits. Documented cultural resources on DPR 523 forms. Provided a technical report with the results of the monitoring, testing, and evaluation, including an artifact analysis and historic research. The University of California Regents was the lead agency.

APPENDIX B: EIC RECORD SEARCH CONFIRMATION

Report Number	Year	Title
RI-00111	1973	Archaeological Impact Evaluation: Proposed Pala Village Development Rancho California
RI-00162	1989	Archaeological Test Excavations at CA-RIV-1729, Temecula, California
RI-00248	1987	Vail Ranch, Cultural Resources Assessment
RI-00249	1977	A Cultural Resource Inventory of a 700 Acre Parcel (Tentative Tract 9617) Near Temecula, California
RI-00328	1978	Environmental Impact Evaluation: Archaeological Assessment of Parcel 11, 984
RI-00543	1981	Old Temecula: a Historical European-Indian Village, An Archaeolgical Test Phase of Riv-364, Wolf Valley Specific Plan
RI-00544	1988	Wolf Valley Rancho California Cultural Resources Assessment, Great American Development Company
RI-00545	1979	An Archaeological Assessment of Tentative Tract No. 3983
RI-00547	1998	Archaeological Excavations of Old Temecula Village Riv-364, a Post Contact Luiseno Village.
RI-00623	1979	Preliminary Archaeological Assessment of Four Alternate Sites for the New Temecula/Murrieta/Rancho California Airport, Riverside County, California
RI-00743	1979	Environmental Impact Evaluation: An Archaeological Assessment of Tentative Parcel 13734, East of Temecula, Riverside County, California
RI-00968	1980	Environmental Impact Evaluation: Archaeological Assessment of Tentative Parcel 15211, Riverside County, California
RI-01048	1980	Cultural Resource Inventory and Impact Assessment for the KACOR/Rancho California Property
RI-01201	1981	Environmental Impact Evaluation: An Archaeological Assessment of Tentative Parcel 16962, Southeast of Temecula in Riverside County, California
RI-01592	1979	An Archaeological Assessment of Parcel 12787
RI-01857	1984	An Archaeological Assessment of TT 19872, Temecula Area of Riverside County, California
RI-01864	1984	An Archaeological Assessment of Tentative Parcel 20385, Temecula Area, Riverside County, California
RI-02169	1987	Rancho Villages Assessment District Cultural Resources Element
RI-02260	1988	An Archaeological Assessment of Vail Meadows Specific Land Use Plan
RI-02261	1988	The Tonan Ranch Cultural Resources Assessment
RI-02262	2000	Letter Report: Tonan Ranch, CA-RIV-3410.
RI-02376	1988	An Archaeological Test Excavation of RIV-3390 and RIV-3391-H Vail Meadows Specific Land Use Plan
RI-02417	1989	Test Excavations of the McGee Store (RIV-2189)
RI-02418	1991	Archaeological Data Collection: Magee Store Adobe, ca. 1859-1875, RIV-2189, Old Temecula, California
RI-02419	1989	Test Excavations of RIV-1520, The Pablo Apis Adobe

RI-02420	1989	Archaeological Data Collection: Apis Adobe, CA. 1845-1875, RIV-1520, Old Temecula, California
RI-02421	1988	The Tonan Ranch - Cultural Resources Assessment; An Archaeological Test Excavation of RIV-3410
RI-02422	1991	Data Recovery at Tonan Ranch, CA-RIV-3410
RI-02522	1989	The Murdy Ranch Cultural Resources Assessment.
RI-02757	1990	An Archaeological Assessment of Tentative Tract #21067, Rancho California, Riverside County, California
RI-03218	1991	The Indian Cemetery at Old Temecula [Slightly Revised Edition]
RI-03219	1994	Archaeological Field Inspection and Site Recording at the Old Temecula Cemetery (CA-RIV-115/H)
RI-03436	1992	Cultural Resources Assessment: Pala Road Bridge Sewer and Road Realignment Project at Temecula Creek, Temecula Area of Riverside County, California
RI-03439	1997	Archaeological Survey Report for the Temecula Creek (Pala Road) Bridge in the City of Temecula Riverside County, California 08-RIV-CR-Pala Road
RI-03495	1989	Archaeological Test Excavations of Vail Ranch (RIV-1522)
RI-04095	1998	(Letter Report) Cultural Resources Investigation on the Vail Ranch Property
RI-04381	2000	Cultural Resources Reconnaissance for the Rancho Community Church, Temecula, Riverside County, California.
RI-04404	2000	Final Cultural Resources Inventory Report for the Williams Communications, Inc., Fiber Optic Cable System Installation Project, Riverside to San Diego, California VOL I-IV.
RI-04647	2003	A Phase I Cultural Resources Assessment of APN 961-010-016, 018-020, 25.50 Acres of Land in the City of Temecula, Riverside County, California
RI-04648	1996	Historic Resources Analysis of the Vail Ranch Headquarters, Located Near Temecula, Riverside County, California
RI-04689	2003	Cultural Resources Evaluation of CA-Riv-6499 Located in Temecula, Riverside County, California
RI-04863	2001	A Phase I Archaeological Resource Survey and a Paleontological Records Review of PP16699, a 2.31-Acre Commerical Project Located at Highway 79 and George Cuishman Court, Temecula Area, County of Riverside, California
RI-04864	2002	Phase IV Archaeological and Monitoring Results at PP16699, a 2.31-Acre Commerical Project Located at Highway 79 and George Cuishman Court, Temecula Area, County of Riverside, California
RI-04865	2001	A Phase I Archaeological Resource Survey and a Paleontological Records Review of the Temecula MarketplaceProject, Located Near Highway 79 and Avenida de Missiones, City of Temecula, California
RI-04914	2003	A Phase I Archaeological Survey Report on Wolf Store Retail Park, APN#S 960-020-031 and 040, HWY 79 and Wolf Store Road, Temecula, County of Riverside, California

RI-05027	2000	A Phase I Cultural Resources Investigation of the Vesta Telecommunications, Inc. Fiber Optic Alignment, Riverside County to San Diego County, California
RI-05108	2003	Cultural Resources Survey of 21.47 Acres, APN# 961-010-014 and APN# 961-010-015 Temecula, California
RI-05282	2005	Cultural Resource Assessment Trumark Parcel (TT 33891) City of Temecula, Riverside County, CA
RI-05427	2004	A Phase I Cultural Resources Assessment of Tentative Tract Map 31711, +/-2.89 Acres of Land in the City of Temecula, Riverside County, California
RI-05430	2001	Archaeological Monitoring Report: Middle School Site #5 (Wolf Creek), City of Temecula, Riverside County, California
RI-05535	2005	A Phase I Cultural RESORUCES Assessment of Tentative Tract Map 31946, +/-46.58 Acres of Land IN TEMTECULA, Riverside County, CA
RI-05992	2003	Archaeological Testing and Evaluation: Western Portions of Site CA-Riv-3410/H, Temecula Marketplace project, City of Temecula, Riverside, CA
RI-06323	2004	Historical/Archaeological Resources Survey Report: Temecula Hospital Project, Tentative Parcel Map No. 32468, City of Temecula, Riverside County, California
RI-06790	2006	An Archaeological and Paleontological Mitifation-Monitoring Report on Wolf Creek, Tract 29798, +/- 175 Acres, City of Temecula, Riverside County, California
RI-06881	2007	Cultural Resources Montitoring of the Temecula Lane Project, Tentative Tract Map 31946, City of Temecula, Riverside County, California.
RI-07090	2007	A Phase I Archaeological Survey Report for, Tract 3752, APN 959-050-011, +/- 2.76 Acres, City of Temecula, Riverside County, California.
RI-07092	2006	An Archaeological and Paleontological Mitigation-Monitoring Report for Tract 30177 Vail Ranch Towne Center, City of Temecula, Riverside County, California
RI-07176	2002	Cultural Resource Assessment: AT&T Wireless Services, Facility No. 08022R, Riverside County, California.
RI-07387	2006	Phase I Cultural Resources Assessment, Temecula Lane 2 Property, City of Temecula, Riverside County, California.
RI-07489	2007	Letter Report: Cultural Resource Records Search and Site Visit Results for Verizon Telcommunications Facility Candidate "Redhaw" 31524 Rancho Pueblo Road, Temecula, Riverside County, California
RI-07611	2008	Archaeology Study of Vail Ranch Restoration Plan (4 Acres), City of Temecula, Riverside, California
RI-08387	2009	Letter Report: Cultural Resources Assessment of the Distributed Antennae Communications System Porject in the Cities of Temecula and Murrieta, Riverside County, California (BCR Consulting Project No. SYN0903).

RI-08485	2009	Archaeological Survey for Southern California Edison's Service Pole Installations in Temecula, Murrieta, and Lake Elsinore, Riverside County, California
RI-08759	2012	Letter Report: Historical, Archaeological, and Paleontological Monitoring Rancho Community Reformed Church Sports Field Project, Site CA-RIV-6499, City of Temecula, Riverside County, California, CRM Tech Contract No. 2600
RI-08881	2012	An Archaeological Mitigation-Monitoring Report for the Temecula Creek Project
RI-09254	2013	Final Archaeological Resources Monitoring Project Report for the Villages at Paseo Del Sol Project, Riverside County, California
RI-09257	2011	Cultural Resources Assessment of the NewPath Networks, LLC DAS Project in the Cities of Murrieta and Temecula, Riverside County, California (BCR Consulting Project No. SYN0901)
RI-09346	2014	A Phase IV Cultural Resources Monitoring Report of United Surgery Center PA13-0166 APN 959-070-031 Grading Permit No. LD13-085GR 1.01 Acres of Land Located at 31469 Rancho Pueblo Road, Temecula Riverside County, California USGS Murrieta, California Quadrangle, 7.5' Series Section 17, Township 8 South, Range 2 West, SBM
RI-09380	2015	Historical/Archaeological Monitoring Program Rancho Community Reformed Church Sports Field Project Site
RI-09554	2012	Bella Linda Residential Project, Temecula, Riverside County, California
RI-09940	2017	Historical/Archaeological Resources Survey Report: Margarita & De Portola Project, Assessor's Parcel Numbers 959-050-004 and -009, City of Temucula, Riverside County, California
RI-09986	2016	Cultural Resources Assessment Mexico Café Development Plan Temecula, Riverside County, California
RI-10106	2017	Cultural Resources Assessment Pechanga Parkway Widening Project Temecula, Riverside County, California
RI-10722	2009	Cultural Resources Records Search Results for Verizon Wireless Candidate "Temecula Creek" 44618 Pechanga Parkway, Temecula, CA 92592
RI-10724	2010	Archaeological Sensitivity Assessment Temecula Creek 44618 Pechanga Parkway, Temecula, Riverside County, CA EBI Project #61097011

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PrimaryString	TrinomialString	ResType	Age	Attribs
P-33-000115	CA-RIV-000115	Site	Protohistoric	AH04; AH12; AP02; AP03; AP09
P-33-000364	CA-RIV-000364	Site	Protohistoric	AH04; AP02; AP03; AP15
P-33-001520	CA-RIV-001520	Site	Protohistoric	
P-33-001522	CA-RIV-001522	Site	Historic	HP33; HP44
P-33-001728	CA-RIV-001728	Site	Prehistoric	
P-33-001729	CA-RIV-001729	Site	Prehistoric	AP02; AP04; AP11; AP15
P-33-002189	CA-RIV-002189	Site	Historic	
P-33-003391	CA-RIV-003391	Site	Multicomponent	AH02; AH04
P-33-003410	CA-RIV-003410	Site	Multicomponent	
P-33-003411	CA-RIV-003411	Building	Historic	
P-33-003650	CA-RIV-003650	Site	Prehistoric	
P-33-007775		Building	Historic	AH10; HP02; HP06; HP33
P-33-007777		Building	Historic	
P-33-007883	CA-RIV-005845	Site	Prehistoric	
P-33-009753	CA-RIV-006499	Site	Prehistoric	AP02
P-33-011005	CA-RIV-006645	Site	Prehistoric	AP11; AP15
P-33-011811		Site	Prehistoric	AP04
P-33-012731		Site	Prehistoric	AP04
P-33-012732		Isolate	Prehistoric	AP03
P-33-021292		Isolate	Prehistoric	
P-33-021293		Isolate	Prehistoric	
P-33-021294		Isolate	Prehistoric	
P-33-021295		Isolate	Prehistoric	
P-33-021298		Isolate	Prehistoric	AP16
P-33-024088		Isolate	Prehistoric	AP16
P-33-024089		Isolate	Prehistoric	AP16
P-33-024090		Isolate	Prehistoric	AP16
P-33-024091		Isolate	Prehistoric	AP16

OtherIDs			
Other - AASC RV-42; Other - Pechanga Cemetary; Other - ARU # 239 (2/79); Other - UCLA 4-RIV-115 Supp.			
Other - Rancho California Site no. 1			
Other - Steffy Site 3			
Other - RC #3			
Other - Red Hawk 1			
Other - Pauba Ranch; Other - Ser. No. 33-2390-34-9999; OTIS Resource Number - 464980; OHP Property Number - 062690; National Register - 3D			
Other - Temecula 1; Other - CRM TECH 2841			
Other - CRM TECH 589			
Other - VM-3			
Other - 20111007RC.01; Other - Isolate UHST-01			
Other - 20111011JK.01; Other - Isolate-UHST-02			
Other - Isolate UHST-03; Other - 20111011jk.02			
Other - 2111026VA.01; Other - Isolate UHST-04			
Other - 20111026VA.02; Other - Isolate UHST-05			
Other - BL-ISO-2			
Other - BL-ISO-5			

APPENDIX C: NAHC CORRESPONDENCE

Local Government Tribal Consultation List Request

Native American Heritage Commission
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95691
916-373-3710
916-373-5471 – Fax
nahc@nahc.ca.gov

Type of List Requested

☒ **CEQA Tribal Consultation List (AB 52) –** ***Per Public Resources Code § 21080.3.1, subs. (b), (d), (e) and 21080.3.2***

☐ **General Plan (SB 18) -** ***Per Government Code § 65352.3.***

Local Action Type:

___ General Plan ___ General Plan Element ___ General Plan Amendment

___ Specific Plan ___ Specific Plan Amendment ___ Pre-planning Outreach Activity

Required Information

Project Title: Temecula Valley Hospital Master Plan Update

Local Government/Lead Agency: City of Temecula
Contact Person: Amy Jordan
Street Address: 8555 Aero Dr, Suite 206
City: San Diego **Zip:** 92123
Phone: 619-740-1318 **Fax:**
Email: ajordan@asmaffiliates.com

Specific Area Subject to Proposed Action

County: Riverside **City/Community:** Temecula

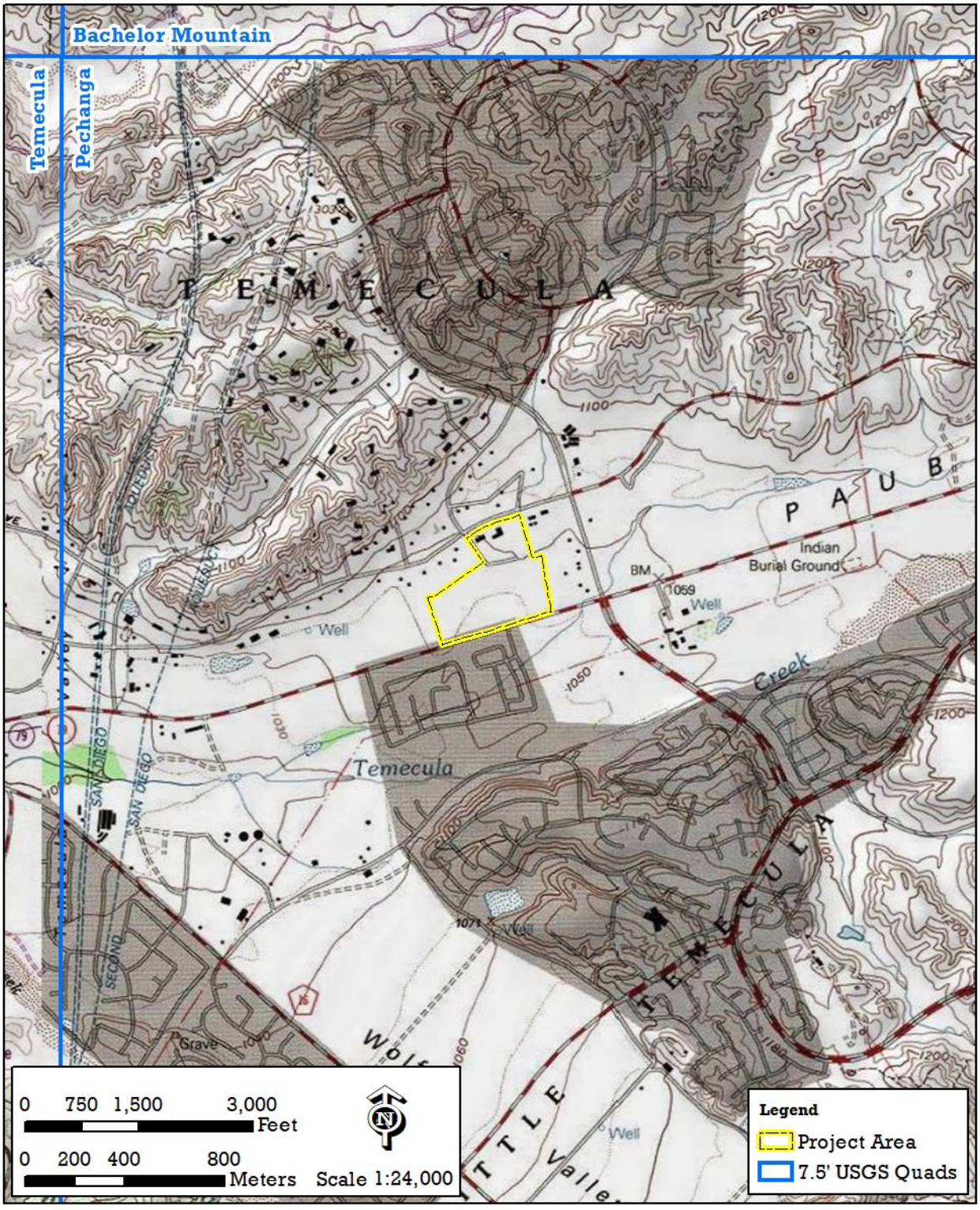
Project Description:

The Temecula Valley Hospital Master Plan Update (proposed project) consists of revisions to the currently adopted master plan that require a Major Modification and Planned Development Overlay Amendment. The proposed project includes development of a behavioral health building, an emergency department expansion, two hospital towers, two medical office buildings, a utility plant, surface parking lots, and a 4-story parking structure. In addition, the proposed project includes relocation of the existing helipad to the roof of the proposed parking structure.

Additional Request

☒ **Sacred Lands File Search -** ***Required Information:***

USGS Quadrangle Name(s): Temecula
Township: 8S **Range:** 2W **Section(s):** unsectioned


Bachelor Mountain
Temecula
Pechanga
T E M E C U L A
P A U B
Indian
Burial Ground
BM
1059
Well
Creek
Temecula
SAN DIEGO
SECOND
Grave
Valley
0 750 1,500 3,000
Feet
0 200 400 800
Meters
Scale 1:24,000
Legend
Project Area
7.5' USGS Quads

Appendix D

Geotechnical Study

GEODESIGN INC

REPORT OF GEOTECHNICAL ENGINEERING SERVICES

Proposed Temecula Hospital

Northwest of Margarita Road and Highway 79

Temecula, California



For

Turner Construction Company

August 16, 2010

GeoDesign Project: TurnerCons-1-02

GEODESIGN INC

August 16, 2010

Turner Construction Company
1900 South State College Boulevard, Suite 200
Anaheim, CA 92806

Attention: Mr. Lee Tsangeos

Report of Geotechnical Engineering Services
Proposed Temecula Hospital
Northwest of Margarita Road and Highway 79
Temecula, California
GeoDesign Project: TurnerCons-1-02

GeoDesign, Inc. is pleased to submit this report presenting the results of our geotechnical investigation for the proposed Temecula Hospital to be constructed northwest of Margarita Road and Highway 79 in Temecula, California.

We appreciate the opportunity to provide our professional services. Please contact us if you have questions regarding this report.

Sincerely,

GeoDesign, Inc.

Christopher J. Zadoorian, G.E.
Principal Engineer

cc: Mr. George Zettel, Turner Construction Company (two copies)
Mr. Tom McCready, DPR Construction (two copies)
Mr. Steve Wilson, HMC Architects (nine copies)
Dr. Saiful Islam, Saiful/Bouquet Consulting Engineers (two copies)
Ms. Margie DeLaurell, URS (two copies)

SFK:CJZ:kt
Attachments
Two copies submitted
Document ID: TurnerCons-1-02-081610-geor.doc
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1.0 INTRODUCTION

1.1 GENERAL

This report presents the results of our geotechnical investigation at the site of the proposed Temecula Hospital complex to be constructed northwest of the intersection of Margarita Road and Highway 79 in Temecula, California. The site location is shown on Figure 1. For your reference, definitions of all acronyms used in this report are presented at the end of this document.

Previous geotechnical investigations were performed at the site by PSI in 2004 and 2006 for the proposed development. The recommendations presented by PSI were conditionally approved by OSHPD in their letter dated August 25, 2009 (OSHPD No HS052415-33).

GeoDesign was retained to perform peer review services regarding the previously approved geotechnical investigations and reports. Based on our review, we concluded that more robust field investigation and engineering analysis could be performed to better define key site conditions, including liquefaction potential. As such, we have performed an independent geotechnical investigation at the site and developed independent conclusions and recommendations that are presented herein.

Pertinent data available from the prior investigations was utilized in our assessment of the overall soil conditions at the site and in developing the conclusions and recommendations presented herein. As such, we assume professional responsibility for our interpretation of the data and our application of that data presented in the prior reports.

Since the time of the prior geotechnical approval, the development concept has changed somewhat in that the building footprints have been reduced in plan area and the height of the proposed bed tower has been reduced. In general, the proposed development includes the construction of two Occupancy Category I hospital buildings and an adjacent Occupancy Category B building.

This report presents geotechnical design recommendations for the proposed Occupancy Category I buildings and the CUR. Recommendations for the Occupancy Category B building will be presented in a separate geotechnical report.

1.2 PROPOSED DEVELOPMENT

The proposed development includes a single0story Occupancy Category I hospital building, a five-story Occupancy Category I hospital tower, a CUR, and a one-story Occupancy Category B building as shown on Figures 2.1 and 2.2.

Ms. Margie DeLaurell of URS Corporation and Mr. Steve Wilson of HMC Architects each provided plans for the proposed hospital development. Based on the information provided, and our discussions with Ms. DeLaurell and Mr. Wilson, the finish floor level for all proposed buildings will be established at approximately Elevation 1057.4 above MSL.

The ground surface level at the site of the proposed Occupancy Category I and CUR buildings ranges from approximately Elevation 1,056 above MSL at the northeast corner of the CUR to Elevation 1,050 above MSL near the south side of the proposed tower building, so that fill on the order of approximately 2 to 7 feet in thickness will be required at the site.

As shown on Figures 2.1 and 2.2, the Occupancy Category I buildings will be approximately 340 feet in length (north to south) by approximately 120 feet in width (east to west). The proposed CUR will be located north of the proposed buildings and the Occupancy Category B building will be located east of the proposed buildings.

Future expansion beyond the current plan may include an additional Occupancy Category I bed tower south of the current planned development as well as an addition to the Occupancy Category B building east of the current planned development.

Additional site improvements include parking lots and access drives.

Dr. Saiful Islam of Saiful/Bouquet Consulting Engineers provided us with structural loading information for the proposed hospital development. Based on the information provide by Dr. Islam, maximum interior column loads for the proposed five-story tower will be on the order of 650 to 750 kips and perimeter tower column loading will be on the order on one-half to two-thirds of the interior column loading. Dr. Islam also indicated that the maximum column loading for the one-story buildings will be on the order of 200 to 250 kips.

2.0 PURPOSE AND SCOPE

The purpose of our investigation was to provide geotechnical design recommendations for the proposed hospital development. Our services included the following main tasks:

- Coordinated and managed the field investigation, including utility checks, site access authorizations, access preparations, and scheduling of subcontractors and GeoDesign field staff.
- Conducted an exploration program that included the drilling of 11 borings using mud-rotary methods to depths ranging between 61.5 and 101.5 feet BGS.
- Obtained closely spaced soil samples from the borings for laboratory testing, and maintained a log of soil conditions encountered in the explorations.
- Performed down-hole SPT hammer energy efficiency calibrations.
- Performed suspension logging to obtain shear wave velocity measurements in one boring.
- Performed geotechnical laboratory testing on selected samples as determined appropriate.
- Performed intensive liquefaction evaluation of the soils at the site.
- Performed a geologic-seismic hazards evaluation of the site in accordance with CGS and OSHPD requirements.
- Developed recommendations for the foundation design for the proposed buildings.
- Developed grading and earthwork recommendations.
- Developed pavement design recommendations.
- Prepared this geotechnical report summarizing our investigation and presenting our conclusions and design recommendations.

3.0 SITE CONDITIONS AND GEOTECHNICAL EXPLORATIONS

3.1 SURFACE CONDITIONS

The site is vacant land located northwest of the intersection of Highway 79 and Margarita Road in Temecula, California. The site is approximately 28 acres and is currently occupied with low-lying grasses and localized stands of trees and brush. An unpaved extension of Pio Pico Road is present in the northern portion of the site, which provides access from De Portola Road.

The site is bound by Highway 79 on the south and De Portola Road and private residential developments on the north. Commercial developments bound the site on the east and west. An open flood control channel is present near the eastern site boundary approximately 450 feet east of the currently proposed Occupancy Category I hospital buildings and 400 feet east of the currently proposed Occupancy Category B building.

The site is located in the Pechanga 7.5-Minute Quadrangle and the ground surface level ranges from approximately Elevation 1,044 to Elevation 1,064 feet above MSL. Topography at the site slopes gently to the south, southeast, and southwest. Site elevations are highest in the northern portion of the site adjacent to De Portola Road and lowest at the southeast corner of the site adjacent to Highway 79.

Within the proposed building footprints, the ground surface level ranges from approximately Elevation 1,056 to Elevation 1,050 above MSL.

3.2 SUBSURFACE CONDITIONS

3.2.1 Current Explorations

We explored the site by drilling 11 borings using mud-rotary drilling equipment to depths ranging from 61.5 to 101.5 feet BGS at the locations shown on Figures 2.1 and 2.2. Borings B-1, B-1A, and B-2 through B-5 were drilled in May 2010. After completion of our initial borings, the proposed building footprints were revised. In July 2010, we drilled borings B-6 through B-10 to provide adequate coverage of the revised and current building configurations.

Our field investigation program included several components that were absent from the earlier investigations. These components consist of the following:

- Closely spaced sampling intervals of 2.5 feet between 5 and 60 feet BGS
- Energy efficiency measurements of the SPT hammer
- Recording of blow counts by the inch between depths of 30 and 75 feet BGS
- Performance of suspension logging to obtain shear wave velocity data for the site

In addition, as an added measure of quality control, the borings were logged by the undersigned licensed engineering geologist and licensed geotechnical engineer.

The purpose of the more intensive field exploration program was to more clearly define the subsurface conditions primarily for use in liquefaction analysis.

We collected bulk and relatively undisturbed samples from the borings and performed SPTs in each boring.

The locations of the borings and the general development scheme are shown on Figures 2.1 and 2.2 and the logs of the explorations are presented in Appendix A.

3.2.2 Prior Explorations

Data was also available from the prior investigations by PSI, which included 11 hollow-stem auger borings and 6 CPTs performed in 2004. In addition, four hollow-stem auger borings and four mud-rotary borings were performed in 2006. The locations of the prior borings and CPTs are shown on Figures 2.1 and 2.2, and the logs of the prior borings and CPTs are presented in Appendix B.

The data available from the prior investigations is useful in providing overall correlations and confirmation of the data collected during our current investigation.

3.2.3 Subsurface Soil Conditions

The native alluvial soils encountered in the borings consist of Holocene age poorly consolidated flood plain deposits (Kennedy, 2000) that are predominantly interbedded silty sand, silt, sand, and sand with gravel. Silty sand was encountered at the ground surface in all of the 11 borings drilled for this investigation. Fill materials were not observed.

The soils encountered in our borings are indicative of the depositional environment and vary considerably from boring to boring. In general, the soils consist of alternating layers of silt and sand, each varying in consistency and composition. Occasional clayey layers are present throughout the depths explored and minor amounts of gravel were typically encountered between depths of approximately 33 and 70 feet BGS. It should be noted, however, that the gravel encountered does not appear to impact (i.e., artificially inflate) the SPT blow counts. This conclusion is based on our inch-by-inch blow count data, which is presented in Appendix A.

The alluvial soils in the upper 20 to 33 feet BGS consist of alternating layers of medium dense to dense, silty sand; medium stiff sand with silt; and silt with minor sand lenses. The soils are loose to medium dense and/or soft to medium stiff silt to depths of approximately 13 to 28 feet BGS. Below this depth, the soils are generally dense to very dense or stiff to hard silt. Localized clayey layers and high plasticity silts are also present in the upper approximately 33 feet BGS.

Below approximately 33 feet BGS, the soils generally consist of fine- to coarse-grained sand and sand with varying amounts of gravel. Intermittent silt and clay layers are also present.

The distribution of subsurface materials is depicted on Figures 3.1 and 3.2. The location of the section lines are shown on Figures 2.1 and 2.2. Figure 4 depicts the geologic materials at the site and the surrounding area. The exposed geologic materials at the site are fairly uniform across the area of the proposed development consisting of primarily silty sand alluvial flood plain deposits of Holocene age. Consequently, a site-specific geologic map was not presented.

3.2.4 Groundwater

3.2.4.1 Current Groundwater Levels

Groundwater beneath the site was encountered in our current borings at depths ranging from approximately 22 to 28 feet BGS, corresponding approximately to Elevation 1,025 to Elevation 1,029 above MSL. Groundwater was encountered in the previous explorations at the site at depths ranging from 23.5 to 39 feet BGS, corresponding to Elevation 1,016 to Elevation 1,031 above MSL.

There are four monitoring wells on site installed as part of the previous investigations by PSI. The reported depth to groundwater measured in these wells ranged from 25 to 28 feet BGS; however, additional data was not available from these monitoring wells.

The depth to groundwater and the corresponding groundwater elevation encountered in our borings and the previous borings by PSI are summarized in Table 1. Groundwater levels were not established in the previous CPTs.

Table 1. Summary of Groundwater Levels

Exploration Number	Date Drilled	Boring Elevation (above MSL)	Total Depth Drilled (feet BGS)	Depth to Groundwater (feet BGS)	Groundwater Elevation (above MSL)
GeoDesign					
1	May 2010	1,054.5	76.5	27	1,027.5
1A	May 2010	1,051.5	61.5	23.5	1,028
2	May 2010	1,051	101.5	22	1,029
3	May 2010	1,049.5	76.5	22	1,027.5
4	May 2010	1,048.5	76.5	23	1,025.5
5	May 2010	1,050	76.5	23	1,027
6	July 2010	1,055.5	76.5	27.5	1,028
7	July 2010	1,054	76.5	28	1,026
8	July 2010	1,051.5	61.5	23.5	1,028
9	July 2010	1,049.6	76.5	23	1,026.6
10	July 2010	1,051	76.5	26	1,025
PSI					
1	2004	1,055	71.5	39	1,016
2	2004	1,051.5	71.5	24	1,027.5
3	2004	1,053	26.5	Not encountered	-
4	2004	1,050.5	26.5	Not encountered	-
5	2004	1,053	26.5	Not encountered	-
6	2004	1,052.5	26.5	Not encountered	-
7	2004	1,050	6.5	Not encountered	-
8	2004	1,050.5	6.5	Not encountered	-
9	2004	1,052.5	6.5	Not encountered	-
10	2004	1,050	6.5	Not encountered	-

Table 1. Summary of Groundwater Levels (continued)

Exploration Number	Date Drilled	Boring Elevation (above MSL)	Total Depth Drilled	Depth to Groundwater (feet)	Groundwater Elevation (above MSL)
11	2004	1,049.5	6.5	Not encountered	-
12	2004	1,056.5	6.5	Not encountered	-
HS-B1	2006	1,055	33	28	1,027
HS-B2	2006	1,056	31.5	25	1,031
HS-B3	2006	1,056	33	28	1,028
HS-B4	2006	1,054.5	31.5	28	1,026.5
MR-B1	2006	1,051	70.3	24	1,027
MR-B2	2006	1,053.5	71	23.5	1,030
MR-B3	2006	1,056	51.5	31	1,025
MR-B4	2006	1,055	70.5	39	1,016

3.2.4.2 Historic Groundwater Levels

The site is located in an alluviated valley that is underlain by young (Holocene age) flood plain deposits. Temecula Creek flows west-southwest, trending roughly parallel to Highway 79, and is located approximately 0.4 mile (0.6 km) south of the site. The Elsinore Fault Zone is located 0.4 mile (0.6 km) west-southwest of the site and acts as a groundwater barrier to southwesterly groundwater flow in the Pauba Valley.

These conditions have resulted in high historic groundwater levels in the site vicinity, including locally artesian conditions. Based on available well records, Well No. 08S/02W-17G01S is located approximately 200 feet east of the site. This well had flowing conditions in 1967 (Department of Water Resources, 1971).

The site is located in the Pechanga 7.5-Minute Quadrangle. The CGS, as part of the seismic hazard mapping program, is currently evaluating seismic hazards, including current and historic groundwater levels, in this quadrangle. The results of the CGS evaluation have not been published at the time of this report.

Based on our discussions with Ms. Cindy Pridmore of CGS in May 2010, it is appropriate to assume that the historic high groundwater level at the site is a depth of 10 feet BGS.

3.3 GEOTECHNICAL LABORATORY TESTING

Geotechnical laboratory testing was performed on selected samples from the exploration, including the following:

- In-place moisture and density
- Maximum dry density
- Atterberg Limits
- Consolidation on undisturbed samples
- Direct shear on undisturbed samples

- Grain Size Analysis
- Hydrometer Analysis

Descriptions of the testing and the test results from our current investigation are presented in Appendix A.

3.3.1 Shear Wave Velocity Measurements

Suspension logging was performed by GeoVision in boring B-2 to develop a shear wave velocity profile for the soils at the site. The results of the testing indicated the soils have an average shear wave velocity of 980 feet per second in the upper 100 feet.

GeoVision's report dated May 27, 2010 is presented in Appendix C and provides a detailed description of the field testing and results.

3.3.2 SPT Hammer Energy Efficient

SPT energy efficiency measurements were performed in boring B-2 by EarthSpectives. The results of the testing are summarized in EarthSpectives' report dated May 21, 2010, which is included in Appendix D.

The drill rig utilized an automatic hammer to advance the samplers. Based on the results of the energy efficiency testing, the automatic hammer generally had an energy efficiency ratio of approximately 80 percent.

4.0 GEOLOGIC CONDITIONS

4.1 GENERAL GEOLOGY

The site is located in the alluviated Pauba Valley in southwestern Riverside County. The Pauba Valley trends northeast-southwest and is truncated on the west by the Elsinore Fault Zone, which forms the boundary between the Pauba Valley on the east and the adjacent southeastern-trending Wolf Valley on the west.

From Corona on the north to the upper Wolf Valley on the south, the Elsinore Fault Zone occupies a trough-like depression (the Elsinore Trough) between the Santa Ana Mountains on the west and the low-lying hills of the Perris Block on the east. These low-lying hills are composed primarily of Quaternary age sedimentary rocks and Mesozoic age igneous rocks and are traversed by many west- to southwest-trending drainages that flow into Murrieta Valley and Temecula Valley (Greenwood and Morton, 1991).

The Elsinore Trough has been an area of known subsidence and ground fissuring since the 1980s. Ground fissures have been documented from Murrieta to the upper Wolf Valley, primarily along pre-existing fault traces, as a result of groundwater withdrawal (Kuperman, 1998).

Topography at the site slopes gently to the south, southeast, and southwest. Site elevations range from approximately Elevation 1,044 to Elevation 1,064 above MSL. The site is underlain by young (Holocene age) flood plain deposits that originated from the higher terrain on the north and from flood events on Temecula Creek located along the southern boundary of Pauba Valley.

Regionally, the site is in the Peninsular Ranges geomorphic province. This province is characterized by northwest-trending geomorphic and structural features such as the nearby, northwest-trending Elsinore Fault Zone, Wolf Valley, and the Santa Ana Mountains west of the site and the San Jacinto Fault Zone and San Jacinto Mountains east of the site.

4.2 FAULTS

4.2.1 General

Faults in California are considered active, potentially active, and inactive based on criteria developed by CGS for the Alquist-Priolo Earthquake Fault Zoning Program (Hart, 1999). A fault is considered active that has had surface displacement within Holocene time (approximately the last 11,000 years). A potentially active fault is a fault that has demonstrated displacement of Quaternary age deposits (last 1.6 million years). Inactive faults have no documented movement in the last 1.6 million years.

The primary purpose of the Alquist-Priolo Earthquake Fault Zoning Program is to identify sites that have a potential for surface rupture due to faults that are in close proximity to the site. In such cases, a building setback zone is established to mitigate the potential for surface fault rupture.

A list of faults in Southern California within a 100-mile (160-km) radius of the site is presented in Table 2. These faults were considered in our site-specific probabilistic seismic hazard analysis discussed in the "Seismic Analysis" section of this report. The location of the site relative to nearly faults is shown on Figures 5 and 6.

Table 2. Regional Faults

Fault Name	Geometry	Source Type*	M_{max}*	Slip Rate* (mm/yr)	Distance from Site (miles/km)	Direction
Elsinore (Temecula Segment)	SS	A	6.8	5.0	0.4/0.6	WSW
San Jacinto (San Jacinto Valley)	SS	A	6.9	12.0	20/32	NNE
Rose Canyon	SS	B	7.2	1.5	30/48	SW
Newport-Inglewood (offshore)	SS	B	7.1	1.5	31/50	SW
San Joaquin Hills	BT	B	6.6	0.5	35/56	W
Earthquake Valley	SS	B	6.5	2.0	3658	SE
Chino-Central Avenue	RO	B	6.7	1.0	37/60	NW
San Andreas (San Bernardino Segment)	SS	A	7.5	24.0	37/60	NE
Coronado Bank	SS	B	7.6	3.0	43/69	SW
Whittier	SS	A	6.8	2.5	44/71	NW
Pinto Mountain	SS	B	7.2	2.5	45/72	NE
Newport-Inglewood Zone	SS	B	7.1	1.0	50/81	W
Cucamonga	N	B	6.9	5.0	52/84	NNW
Puente Hills Blind Thrust	BT	B	7.1	0.7	53/85	NW
Palos Verdes	SS	B	7.3	3.0	54/87	W

Table 2. Regional Faults (continued)

Fault Name	Geometry	Source Type*	M_{max}*	Slip Rate* (mm/yr)	Distance from Site (miles/km)	Direction
Cleghorn	SS	B	6.5	3.0	55/88	N
San Jose	RO	B	6.4	0.5	56/90	W
Eureka Peak	SS	B	6.4	0.6	57/92	NE
Burnt Mountain	SS	B	6.5	0.6	58/93	NE
Sierra Madre	R	B	7.2	2.0	58/93	NW
Clamshell-Sawpit	RO	B	6.5	0.5	60/96	NW
North Frontal Zone (Western)	R	B	7.2	1.0	60/96	N
San Andreas (Mojave)	SS	A	7.4	30.0	60/96	N
Landers	SS	B	7.3	0.6	61/98	NE
San Gabriel	SS	B	7.2	1.0	61/98	NNW
Helendale-South Lockhart	SS	B	7.3	0.6	62/100	NNE
North Frontal Zone (Eastern)	R	B	6.7	0.5	62/100	NNE
Lenwood-Lockhart-Old Woman Spr.	SS	B	7.5	0.6	65/105	NE
Johnson Valley (Northern)	SS	B	6.7	0.6	69/111	NE
Upper Elysian Park	BT	B	6.4	1.3	70/113	NW
South Emerson-Copper Mountain	SS	B	7.0	0.6	71/114	NE
Raymond	RO	B	6.5	1.5	72/116	NW
Superstition Mountain	SS	A	6.6	5.0	74/119	SE
Verdugo	R	B	6.9	0.5	74/119	NW
Calico-Hidalgo	SS	B	7.3	0.6	77/124	NE
Superstition Hills	SS	A	6.6	4.0	78/125	SE
Elmore Ranch	SS	B	6.6	1.0	79/127	SE
Hollywood	RO	B	6.4	1.0	80/129	NW
Pisgah-Bullion Mountain-Mesquite Lake	SS	B	7.3	0.6	80/129	NE
Santa Monica	RO	B	6.6	1.0	86/138	NW
Laguna Salada	SS	A	7.0	3.5	89/143	SE
San Fernando	R	B	6.7	2.0	89/143	NW
Gravel Hills-Harper Lake	SS	7.1	0.6	0.6	97/156	N
Imperial	SS	A	7.0	20.0	98/158	SE
Malibu Coast	RO	B	6.7	0.3	99/159	NW

*CGS, 2003

4.2.2 Elsinore Fault Zone

The closest active fault to the site is the Wildomar Fault of the active Elsinore Fault Zone, located approximately 0.4 mile (0.6 km) to the west-southwest. The Elsinore Fault Zone strikes northwest and extends for a distance of at least 200 km from Corona on the north to the

Mexican border and beyond on the south (Kennedy, 1977). The fault zone separates the stable Perris Block on the east from the Santa Ana Mountains on the west.

The Elsinore Fault Zone consists of a series of parallel to sub-parallel, right-stepping, strike-slip faults that have a west-dipping normal component on the east and a series of east-dipping, steeply inclined normal faults on the west. From Corona to the upper Wolf Valley, the geomorphic expression of the fault zone is characterized by a trough-like depression called the Elsinore Trough. In the vicinity of the site, the Wildomar Fault and the Willard Fault form the east and west boundaries of the trough, respectively.

4.2.3 San Jacinto Fault Zone

The active San Jacinto Fault Zone is located approximately 20 miles (32 km) north-northeast of the site. The San Jacinto Fault Zone is considered the most active fault zone in Southern California based on the number of recorded events originating along the fault zone (Fife, et al., 1976). The fault zone includes several en echelon branches or segments and displays many geomorphic features characteristic of recent activity such as fault line scarps, sag ponds, and groundwater barriers.

Historically, the San Jacinto Fault Zone has triggered a number of small- to moderate-sized earthquakes and at least four large tremors of magnitudes greater than 6.0. The four tremors include the Imperial Valley Earthquake of May 19, 1940 (magnitude 6.7), the Borrego Mountain Earthquake of April 9, 1968 (magnitude 6.6), and the November 23 and 24, 1987 Superstition Hills Earthquakes (magnitudes of 6.2 and 6.6, respectively). The Imperial Valley and the Borrego Mountain Earthquakes occurred on the Imperial Fault and the Coyote Creek Fault, respectively. The Superstition Hills Earthquakes resulted from movement on the Superstition Hills Fault.

4.2.4 Rose Canyon Fault Zone

The offshore segment of the active Rose Canyon Fault Zone is located approximately 30 miles (48 km) southwest of the site. The offshore segment extends northwestward from La Jolla and joins with the southeastern extension of the Newport-Inglewood Fault Zone.

Evidence for Holocene faulting has been identified on strands of this fault zone in Rose Canyon, La Jolla, downtown San Diego, and San Diego Bay (Kennedy and Clarke, 1999). Offset Holocene age soil horizons were encountered in trenches at the onshore locations, indicating that several surface-rupturing earthquakes have occurred in the last 11,000 years along the Rose Canyon Fault Zone. Estimates of displacement and displacement rates are broadly based, long-term averages from pre-Holocene geologic features (Kennedy and others, 1975) or based on a single strand of the complex fault system exposed in a fault trench (Lindvall and Rockwell, 1995). CGS has included the onshore splays of the fault zone within an Alquist-Priolo Earthquake Fault Zone for surface fault rupture hazards.

4.2.5 Newport-Inglewood Fault Zone

The active offshore segment of the Newport-Inglewood Fault Zone is located approximately 31 miles (50km) southwest of the site. Onshore, this fault zone is composed of a series of discontinuous northwest-trending en echelon faults extending from Ballona Gap southeastward to the area offshore of Dana Point. This zone is reflected at the surface by a line of

geomorphically young anticlinal hills and mesas formed by the folding and faulting of a thick sequence of Pleistocene age sediments and Tertiary age sedimentary rocks (Barrows, 1974).

Past movement along the fault zone has been predominantly strike-slip faulting with some reverse faulting along the north segment (north of Dominguez Hills) and some normal faulting along the south segment (south of Dominguez Hills to Newport Beach) (Hauksson, 1987). The 1933 Long Beach Earthquake originated along the Newport-Inglewood Fault Zone.

4.2.6 San Joaquin Hills Thrust

The San Joaquin Hills Thrust is postulated to underlie the San Joaquin Hills in the southern Los Angeles Basin (Grant, et al., 2000 and 2002). This postulated blind thrust fault is believed to be a faulted anticlinal fold, parallel to the Newport-Inglewood Fault Zone but considered a distinctly separate seismic source (Grant, et al., 2002). The recency of movement and Holocene slip rate of this fault are not known. However, the fault is estimated to be capable of an earthquake of magnitude 6.8 to 7.3 (Grant, et al., 2002). This estimation is based primarily on coastal geomorphology and age-dating of marsh deposits that are elevated above the current coastline.

The vertical surface projection of the San Joaquin Hills Thrust is approximately 35 miles (56 km) west of the site at the closest point. This thrust fault is not exposed at the surface and does not present a potential surface fault rupture hazard. However, the San Joaquin Hills Thrust is an active feature that can generate future earthquakes. CGS estimates a slip rate of 0.5 mm/yr and a maximum magnitude of 6.6 for the San Joaquin Hills Thrust.

4.2.7 San Andreas Fault Zone

The San Bernardino segment of the active San Andreas Fault Zone is located approximately 37 miles (60 km) northeast of the site. This fault zone, California's most prominent geological feature, trends generally northwest for approximately 600 miles from Imperial Valley on the south to Point Arena in Humboldt County on the north. In the Southern California area, the fault zone separates the San Gabriel Mountains from the San Bernardino Mountains in Cajon Pass and forms the southern boundary of the San Bernardino Mountains, extending through San Gorgonio Pass and into Coachella and Imperial Valleys (Norris and Webb, 1990).

The fault zone generally consists of a narrow zone of closely spaced, subparallel and anastomosing fault segments that is not more than a few kilometers wide but more typically confined to a zone of less than 1 km wide. Faulting is primarily right-lateral, strike slip and movement along fault segments typically follows previous displacements. CGS (2003) reports maximum magnitudes and slip rates for the various fault segments range from 6.2 to 7.5 and 17 mm/yr to 34 mm/yr, respectively. The San Bernardino Segment, closest to the site, has an estimated slip rate of 24 mm/yr and a maximum magnitude of 7.5.

Historically, several significant earthquakes have originated along the San Andreas Fault Zone. Most notable, because of their resulting loss of life and significant property damage, are the 1906 Magnitude 7.8 San Francisco Earthquake and the 1989 Magnitude 6.9 Loma Prieta Earthquake. The 1857 Magnitude 7.9 Fort Tejon earthquake was the last major earthquake along the San Andreas Fault Zone in Southern California (USGS, 1993).

4.3 GEOLOGIC-SEISMIC HAZARDS

4.3.1 Surface Rupture Due to Nearby Active Faults

Active faults are not known to be located beneath or projecting toward the site. The closest fault to the site capable of surface rupture is the Wildomar Fault of the Elsinore Fault Zone, located approximately 0.4 mile (0.6 km) to the west-southwest. An Alquist-Priolo Earthquake Fault Zone has been established for the Wilomar Fault and is located approximately 0.3 mile (0.5 km) west-southwest of the site at its closest point as shown on Figure 6.

Due to the distance of the earthquake fault zone to the site, the potential for surface fault rupture to adversely affect the site is considered low.

4.3.2 Historic Seismicity

The site is located in Seismic Zone 4 and the seismic hazard for the site and the surrounding Temecula area is considered high based on the location of nearby active faults. Consequently, the site could experience strong ground shaking as a result of an earthquake originating on any of the nearby faults listed in Table 2.

Historic seismicity of the region is summarized in Appendix E, which presents the list of earthquakes of Magnitude $\geq$ 4.5 that occurred within 60 miles (100 km) of the site from 1769 through July 2010. The database was compiled by CGS from 1769 through 1973 and the USGS National Earthquake Information Center Database from 1974 through July 2010. Figure 7 graphically illustrates the location of the site relative to epicenters of California earthquakes of Magnitude $\geq$5 that occurred between 1800 between 1999 (CGS, 2000).

Based on the available data, a partial list of earthquakes that have caused significant damage in the Southern California area within 125 miles (approximately 200 km) of the site is presented in Table 4.

Table 4. Historic Earthquakes

Earthquake Name or Location	Date	Magnitude	Distance (miles/km)	Loss of Life and Property
San Diego/San Juan Capistrano	11/22/1800	6.5	90/56	Damaged adobe walls of missions in San Diego and San Juan Capistrano
Wrightwood	12/08/1812	7.3	48/77	40 dead at San Juan Capistrano
NE San Diego County	02/09/1890	7.0	47/75	Little damage
Laguna Salida, Baja California	02/24/1892	7.3	71/114	Damage to San Diego and Imperial Valley
Hemet and San Jacinto	12/25/1899	6.7	22/36	6 dead; $50,000 property damage
Lake Elsinore	05/15/1910	6.0	22/36	
Near San Jacinto	04/21/1918	6.8	19/31	1 dead; several injured; $200,000 property damage

Table 4. Historic Earthquakes (continued)

Earthquake Name or Location	Date	Magnitude	Distance (miles/km)	Loss of Life and Property
Near Redlands	07/23/1923	6.3	37/59	
Long Beach	03/11/1933	6.4	50/81	115 dead;$40 million property damage
San Jacinto	03/25/1937	6.0	49/79	
Imperial Valley	05/19/1940	6.7	106/171	9 dead; $6 million property damage
Westmoreland	10/21/1942	6.4	73/117	
East of Yermo	04/10/1947	6.5	108/174	
East of Yermo	12/04/1948	6.0	52/83	
Santa Rosa Mts.	03/19/1954	6.4	55/88	
Borrego Mountain	04/09/1968	6.6	60/96	
San Fernando	02/09/1971	6.6	98/157	65 dead; $505 million property damage
Imperial Valley	10/15/1979	6.5	118/190	9 injured; $30 million in property damage
Superstition Hills	11/23/1987	6.2	81/131	$3 million property damage
Superstition Hills	11/24/1987	6.6	80/128	part of above damage
Pinto Mountain	04/23/1992	6.1	56/90	
Landers	06/28/1992	7.3	63/101	1 dead; $91 million property damage
Big Bear	06/28/1992	6.5	52/84	Included with Landers losses
Northridge	01/17/1994	6.7	96/155	57 dead; $40 billion property damage
Hector Mine	10/16/1999	7.1	90/145	Minimal injuries/damage due to remote location

As shown in Appendix E and Table 4, there is a potential for significant ground shaking at the site and the surrounding area. However, the seismic risk at the site is similar to most sites in the Southern California area. Adverse effects of ground shaking at the site can be mitigated by engineering design and construction methodology in conformance with the recommendations presented in this report and with current building codes and engineering practices.

4.3.3 Slope Stability

4.3.3.1 Landslides and Unstable Slopes

Site elevations range from approximately Elevation 1,044 to Elevation 1,064 above MSL, and the site topography slopes gently to the south, southeast, and southwest. Site elevations are highest in the northern portion of the site adjacent to De Portola Road and lowest at the southeast corner of the site adjacent to Highway 79.

The site is not located in a County of Riverside Landslide Management Zone (2003, Figure S-4) that identifies areas prone to slope instability (including landslides, rockfalls, and debris flows).

There are no slopes at the site and the topography consists of gently sloping terrain. There are no known landslides near the site nor is the site in the path of any known or potential landslides. The potential for landslides or slope instability at the site is considered low.

4.3.3.2 Debris Flows

The site is located in the Pauba Valley and is not identified as an area with a potential to be affected by debris flows by the County of Riverside General Plan (2003, Figure S-4) or the City of Temecula General Plan (2005). However, the previous geotechnical report for the site by PSI (2006) indicates the site is within an area considered susceptible to possible debris flows discharging from the canyon north of the site (Laton and others, 2000).

4.3.3.3 Seismic-Induced Slope Instability

The site is in the Pechanga 7.5-Minute Quadrangle. CGS, as part of the seismic mapping hazards program, is currently evaluating the hazards related to liquefaction and seismic slope instability in this quadrangle. As of the date of this report, the results of the CGS mapping have not been published.

The County of Riverside has produced maps that identify areas prone to instability as a result of a seismic event. According to the County of Riverside General Plan (2003, Figure S-4), the site is not within an area susceptible to seismic slope stability. Due to the lack of slopes at the site or adjacent to the site, the potential for slope instability as a result of a seismic event adversely affecting the site and the proposed development is considered low.

The proposed development will include construction new hospital buildings that will be supported on deep foundations. The proposed construction will not result in temporary or permanent slopes except in the proposed CUR loading dock area, north of the proposed hospital occupancy buildings. Construction of the loading dock will result in temporary and permanent slopes up to approximately 5 feet in height.

Based on the materials encountered in boring B-6 in this area, the planned slopes will expose primarily sand with silt or sandy silt. These native soils are massive to crudely stratified and lack well-defined continuous planar features or discontinuities (such as smooth bedding planes or joints), which would act as planes of weakness. These conditions are considered favorable for gross stability of excavations. However, if granular soils are exposed with little or no fines, they could be prone to running or caving when excavated.

4.3.4 Liquefaction, Seismic (Dry) Settlement, and Lateral Spreading

These hazards are addressed in detail in the "Liquefaction Analysis" section of this report.

4.3.5 Tsunamis, Inundation, Seiches, and Flooding

The site is not in a coastal area and not susceptible to tsunami hazards.

According to the City of Temecula General Plan (2005, Figure PS-2) and the County of Riverside General Plan (2003, Figure S-10), the site is within an area that could be inundated as a result of a failure of Vail Lake Dam located east of Temecula. However, this dam, as well as others in California, are continually monitored by various governmental agencies (such as the State of

California Division of Safety of Dams and the U.S. Army Corps of Engineers) to guard against the threat of dam failure. The catastrophic failure of a major dam as a result of a scenario earthquake is regarded as unlikely. Current design and construction practices, and ongoing programs of review, modification, or total reconstruction of existing dams are intended to ensure that all dams are capable of withstanding the MCE for the site. Therefore, the potential for inundation at the site as a result of an earthquake-induced dam failure is considered low.

There are no large bodies of waters (lakes or reservoirs) near the site. The site will not be adversely affected in the event of earthquake-induced seiches (wave oscillations in an enclosed or semi-enclosed body of water).

According to the County of Riverside General Plan (2005, Figure S-9) and the City of Temecula General Plan (2005, Figure PS-2), the site is not within a 100-year or 500-year flood zone. However, FEMA Flood Insurance Map Panel 3305 of 3805 indicates the western portion of the site is not within a designated flood zone and the eastern portion of the site is within a Zone X flood hazard zone (FEMA, 2008). Areas within Zone X have a moderate flood hazard, usually between the limits of 100-year and 500-year floods. The depth of potential flooding could be up to several feet.

4.3.6 Subsidence, Ground Fissuring, and Collapsible Soils

Subsidence and associated ground fissuring has been well documented in Riverside County. Areas subject to subsidence and fissuring are primarily alluviated structural valleys such as the San Jacinto Valley and Elsinore Trough that are bound by active faults that offset unconsolidated Holocene age alluvium. The location of ground fissures are typically controlled by underlying geologic structure and typically coincide with pre-existing fault traces.

In southerly portion of the Elsinore Trough, ground subsidence and associated ground fissuring related to changes in groundwater levels has occurred from Murrieta on the north to the upper Wolf Valley on the south. The documented subsidence and fissuring has been confined to the area between fault traces that define the Elsinore Fault Zone on the east and west.

The County of Riverside has established "subsidence report" zones in areas of known subsidence and fissuring, including areas with a moderate to high potential for this phenomenon to occur. Geotechnical reports for proposed developments within these zones must address the potential for future subsidence and ground fissuring. The site is not within a County of Riverside "subsidence report" zone. The closest "subsidence report" zone to the site is approximately 0.4 mile to the west-southwest, confined to the Elsinore Trough between the Wildomar and Willard faults.

The geologic conditions in the Pauba Valley are not characteristic of areas with a potential for large-scale subsidence and associated ground fissuring. However, as identified in the County of Riverside General Plan (2003, Figure S-7), the unconsolidated Holocene age sediments at the site could be susceptible to subsidence or hydro-collapse as a result of changes in groundwater levels.

Moisture-sensitive soils will consolidate or expand due to changes in moisture. Typically, dry, clean sands and silts are subject to hydro-consolidation. In general, the on-site soils consist of variable mixtures of silt and sand with gravel at depth and intermittent clay layers and lenses. There is not a well-defined continuous zone of loose, clean sand or soft silt that would be subject to hydro-consolidation at the site; therefore, the potential for hydro-consolidation is low at this site.

5.0 LIQUEFACTION ANALYSIS

5.1 GENERAL

Liquefaction generally occurs in saturated, loose to medium dense, granular soils and in saturated, soft to moderately firm silts as a result of strong ground shaking. As the density and/or particle size of the soil increases and as the confinement (overburden pressure) increases, the potential for liquefaction decreases.

Based on the County of Riverside General Plan (2003, Figure S-3) and the City of Temecula General Plan (2005, Figure PS-1), the site is within an area identified as having shallow groundwater and underlain by sediments that have a very high susceptibility for liquefaction.

A primary focus of this investigation was to perform closely spaced field testing (SPTs) and very detailed laboratory testing in order to thoroughly evaluate the liquefaction potential of the soils at the site. The following sections summarize our methodology and present the results or our analysis.

5.2 METHODOLOGY

We utilized the procedure outlined in the NCEER document "Proceedings of the NCEER Workshop of Liquefaction Resistance of Soils" (Youd and Idriss, 1997, updated in 2001).

The data available from the SPT hammer energy efficiency testing was utilized in our analysis along with the plasticity index and moisture content testing performed as part of our laboratory testing program.

To evaluate the liquefaction potential of fine-grained soils, we utilized the procedures summarized and/or suggested by Boulanger and Idriss (2006), which include references to the work by Andrus and Martin (2000); Seed, et al. (2003); and Bray, et al. (2004).

In essence, these procedures evaluate whether soils will behave more like clays or more like sands. Clay-like behavior generally precludes liquefaction while sand-like behavior indicates soils may be subject to liquefaction and should be evaluated using the appropriate procedure.

Our determinations for clay- and sand-like behavior were made based on the plasticity data, moisture content, and grain size distribution data from our laboratory testing.

5.3 GROUNDWATER AND GROUND SURFACE LEVELS

The groundwater level at the time of our field investigation is below the historic high groundwater level in the area. Therefore, in performing SPT blow count correction calculations, the current groundwater level data was used for each boring.

However, in performing our liquefaction analysis, the historic high groundwater level was utilized in relation to the planned finish floor level. Please note that the planned finish floor level is higher than the existing ground surface in all cases, so that the relative historic high groundwater level for each boring will vary somewhat, in relation to the current and proposed ground surface levels.

5.4 SEISMIC INPUT DATA

The primary seismic input data for a liquefaction analysis includes the pre-dominant earthquake magnitude and peak ground acceleration. We performed a ground motion study that is summarized in the "Seismic Analysis" section of this report. In our study, we determined the predominant earthquake magnitude for this site is 6.7; that the PGA for the MCE event is 0.88 g as computed using NGA relationships and 0.69 g as computed using earlier versions of attenuation relationships, as discussed in the "Seismic Analysis" section of this report.

We utilized the PGA value of 0.88 g in our liquefaction analysis.

5.5 LIQUEFACTION ANALYSIS AND RESULTS

We performed detailed liquefaction analysis using data collected from our borings. The results of our analysis are presented in Appendix F. Table 5 presents an overview of the results.

Table 5. Summary of Liquefaction Analysis

Exploration Number	Liquefiable Layers		Total Estimated Settlement (inches)
	Depth (feet BGS)	Elevation (above MSL)	
GeoDesign B-1	20 - 22 50.5 - 54	1,034.5 - 1,032.5 1,004 - 1,000.5	0.4 0.6
GeoDesign B-1A	17 - 23.5	1,034.5 - 1,028	1.1
GeoDesign B-2	16.5 - 21.5 33 - 34	1,034.5 - 1,029.5 1,018 - 1,017	0.5 0.3
GeoDesign B-3	24.5 - 29.5	1,025 - 1,020	0.1
GeoDesign B-4	20.5 - 22.5	1,028 - 1,026	0.1
GeoDesign B-5	20.5 - 22.5 30 - 32.5	1,029.5 - 1,028 1,019.5 - 1,017.5	0.3 0.4
GeoDesign B-6	12.5 - 15.5	1,043 - 1,040	0.1
GeoDesign B-7	-	-	0.0
GeoDesign B-8	24 - 30.5	1,027.5 - 1,021	1.2
GeoDesign B-9	18 - 20.5	1,031.5 - 1,029	0.5
GeoDesign B-10	22.5 - 24 33 - 34.5	1,028.5 - 1,027 1,018.5 - 1,016.5	0.3 0.3

Based on the results of our analysis, it can be seen that the distribution of potentially liquefiable soils at the site is variable and the liquefiable layers are generally discontinuous.

Typically, the liquefiable soils are not present below approximately Elevation 1,025 above MSL, with the following noted exceptions. In borings B-2, B-5, and B-10, liquefiable layers are present slightly deeper, extending to Elevation 1016.5 above MSL; however, in these cases, the thickness of the liquefiable layers is 2 feet or less and the total liquefaction settlement in those layers in each case is less than 0.4 inch.

In boring B-1, which is outside of the proposed building footprint, a deeper layer of potentially liquefiable soils is present extending to Elevation 1,000.5 above MSL; this layer is anomalous and it was not encountered in any of the other explorations. Considering that an approximately 28.5-foot-think layer of non-liquefiable soils is present above this layer, it is unlikely that manifestations of this layer would surface.

The results of our liquefaction analysis are presented in Appendix F.

5.6 LATERAL SPREADING

Lateral spreading may occur when potentially liquefiable soils are present in conjunction with a sloping ground surface and an "open-face" condition whereby the sloping surface daylights or is unsupported. If soils within the slope liquefy, the result may be temporary instability resulting in deformation or translation of the slope. In order for this to occur, the liquefiable soils need to be continuous and the toe of the slope needs to be unsupported.

One feature that meets these conditions is the adjacent drainage channel, which is present immediately east of the site and approximately 450 feet east of the proposed hospital buildings.

Evaluation of lateral spreading potential is typically performed using the methodology suggested by Youd, Hansen, and Bartlett (2002).

However, for the conditions at this site, as discussed in the "Liquefaction Analysis and Results" section of this report, liquefiable layers are generally discontinuous between borings and the planned setback of approximately 450 feet of the proposed hospital buildings to the exposed slope of the drainage channel is sufficient to mitigate the potential for lateral spreading to adversely affect the proposed buildings.

It should be noted, however, that future developments within approximately 200 feet of the channel should be carefully evaluated for adverse impacts of lateral spreading. The distance of 200 feet was determined based on the typical spacing from the borings and the general discontinuous nature of liquefiable soils at the site.

5.7 SEISMIC (DRY) SETTLEMENT

Seismic (dry) settlement can occur in loose to medium dense, granular soils as a result of strong ground shaking. Since the liquefaction analysis is based on the historic high groundwater level

of 10 feet BGS, the upper 10 feet of soils were evaluated for seismic (dry) settlement. The upper soils generally consist of medium dense, silty sands and sandy silts are not considered subject to seismically induced (dry) settlement.

6.0 SEISMIC ANALYSIS

We performed a ground motion study for the proposed hospital development following the procedure outlined in ASCE-7-05, which is based on the MCE. The MCE is defined as an earthquake that results in ground motions that have a 2 percent chance of being exceeded in 50 years (a 2,475-year recurrence interval). The procedure is outlined in Table 6.

Table 6. Summary of ASCE-7 Procedure for Seismic Design

Step	Procedure	Reference
1	Compute Generalized Response Spectrum	ASCE 11.4.5
2	Compute MCE Response Spectrum	ASCE 11.4.6
3	Compute Probabilistic MCE Response Spectrum	ASCE 21.2.1
4	Compute Median Deterministic Response Spectrum	ASCE 21.2.2
5	Compute Deterministic MCE Response Spectrum	ASCE 21.2.2
6	Compute Deterministic Lower Limit on MCE Response Spectrum	ASCE 21.2.2
7	Compute Final Deterministic MCE Response Spectrum	ASCE 21.2.2
8	Compute Site-Specific MCE Response Spectrum	ASCE 21.2.3
9	Compute Two-Thirds of Design MCE Response Spectrum	ASCE 21.3
10	Compute 80 Percent of Generalized Design Response Spectrum	ASCE 21.3
11	Compute Final Design Response Spectrum	ASCE 21.3
12	Compute Final Design Acceleration Parameters	ASCE 21.4

The following sections outline our analysis methodology and present the results of our study.

STEP 1 - GENERALIZED RESPONSE SPECTRUM

The generalized response spectrum for a site is developed by identifying the spectral ordinates at periods of 0.2 and 1 second and identifying the appropriate site class in accordance with Table 1613.5.2 of the 2006 IBC. The spectral ordinates are obtained based on the site location from maps presented in Section 1613 of the 2006 IBC, or if the site class is S_F, then based on a site-specific analysis.

In accordance with the data obtained from our field investigation, the soils at the site may be classified as Site Type S_D. This classification is based on the blow count data from our explorations at the site and the shear wave velocity measurements performed at the site.

Section 11.4.5 of ASCE-7 summarizes the development of the generalized design response spectrum and the results of our analysis are for the site is presented in Table 7.

STEP 2 - MCE RESPONSE SPECTRUM

The MCE response spectrum is simply defined as the generalized response spectrum multiplied by 1.5. The MCE response spectral ordinates are presented in Table 7.

STEP 3 - PROBABILISTIC MCE RESPONSE SPECTRUM

The probabilistic MCE response spectrum is developed by performing a PSHA that takes into account faults that are a potential source of strong ground shaking at the site based on a given risk, defined as the recurrence interval. For the MCE, the recurrence interval is 2,475 years, which corresponds to ground motions that have a 2 percent probability of being exceeded in 50 years, as stated in Section 21.2.1 of ASCE-7.

Up until recently, the general practice in California to perform a PSHA has included the use of four ground motion attenuation relationships published in 2007 and 2008, collectively referred to as the NGA relationships. However, recently, CGS has identified concerns using the NGA relationships. As an alternative to using the NGAs, CGS has allowed use of prior versions of the attenuation relationships while an agreed procedure to address the identified concerns regarding the NGAs is developed.

Therefore, for this analysis, we utilized the attenuation relationship developed by Joyner, Boore, and Fumal (1997); Campbell and Bozorgnia (2003); and Abrhamson and Silva (1997).

Based on the data collected from our borings and the prior data available, we assumed a shear wave velocity of 980 feet per second to represent the soils at the site for use in our analysis.

The resulting probabilistic MCE response spectrum is presented in Table 7.

STEP 4 – MEDIAN DETERMINISTIC RESPONSE SPECTRUM

The deterministic MCE response spectrum is also developed by using EZ Frisk in conjunction with the attenuation relationship and soil stiffness estimate discussed above. The deterministic approach simply considers the maximum ground acceleration that may occur at the site as a result of an earthquake. The deterministic analysis differs from the probabilistic analysis in that recurrence intervals are not considered.

The resulting median deterministic response spectrum is presented in Table 7.

STEP 5 – DETERMINISTIC MCE RESPONSE SPECTRUM

The deterministic MCE response spectrum is computed by taking 150 percent of the median deterministic response spectrum and is presented in Table 7.

STEP 6 - DETERMINISTIC LOWER LIMIT ON MCE RESPONSE SPECTRUM

The deterministic lower limit MCE response spectrum is defined in ASCE-7 Section 21.2.2 as the response spectrum that results using prescribed spectral ordinates of 1.5 and 0.6 for 0.2 and 1 second periods, respectively. The resulting deterministic lower limit on MCE response spectrum is presented in Table 7.

STEP 7 – FINAL DETERMINISTIC MCE RESPONSE SPECTRUM

The final deterministic MCE response spectrum is the greater of the deterministic MCE and the lower limit response spectrum as defined in ASCE-7 Section 21.2.2 and is presented in Table 7.

STEP 8 - SITE-SPECIFIC MCE RESPONSE SPECTRUM

As outlined in ASCE-7 Section 21.2.3, the site-specific MCE response spectrum shall be taken as the lesser of the probabilistic MCE computed in Step 3 and the final deterministic MCE computed in Step 7. The resulting site-specific MCE response spectrum is presented in Table 7.

STEP 9 – TWO-THIRDS OF THE SITE-SPECIFIC DESIGN RESPONSE SPECTRUM

Section 21.3 of ASCE-7 allows the site-specific MCE response spectrum computed in Step 8 to be factored by two-thirds for subsequent comparison to 80 percent of the generalized response spectrum that was computed in Step 1. Two-thirds of the site-specific MCE response spectrum is presented in Table 7.

STEP 10 - 80 PERCENT OF THE GENERALIZED RESPONSE SPECTRUM

Section 21.3 of ASCE-7 establishes the lower bound for design ground motions as 80 percent of the generalized response spectrum computed in Step 1. Eighty percent of the generalized response spectrum is presented in Table 7.

STEP 11 – FINAL DESIGN RESPONSE SPECTRUM

To develop the final design response spectrum in Step 8, the spectral ordinates computed in Steps 9 and 10 are compared. If the values computed in Step 9 are less than 80 percent of the generalized response spectrum, the value from the 80 percent response spectrum is used; otherwise, the values computed in Step 9 are used.

The resulting final design response spectrum is, therefore, a hybrid curve based on the generalized response spectrum, the probabilistic MCE response spectrum, and the deterministic MCE response spectrum. The final design response spectrum is presented in Table 7.

Table 7. Spectral Ordinates

Period (s)	Computed Spectral Ordinate from Steps 1 through 11 (g)										
	Step Number										
	1	2	3	4	5	6	7	8	9	10	11
0.000	0.483	0.725	0.685	0.607	0.911	1.500	1.500	0.685	0.457	0.387	0.457
0.050	0.813	1.219	0.877	0.756	1.134	1.500	1.500	0.877	0.585	0.650	0.650
0.100	1.143	1.714	1.143	0.948	1.422	1.500	1.500	1.143	0.762	0.914	0.914
0.200	1.209	1.813	1.505	1.270	1.905	1.500	1.905	1.505	1.004	0.967	1.004
0.300	1.209	1.813	1.531	1.337	2.006	1.500	2.006	1.531	1.021	0.967	1.021
0.400	1.209	1.813	1.451	1.321	1.982	1.500	1.982	1.451	0.968	0.967	0.968
0.500	1.209	1.813	1.366	1.312	1.968	1.500	1.968	1.366	0.911	0.967	0.967
0.750	0.887	1.330	1.144	1.167	1.751	1.200	1.751	1.144	0.763	0.709	0.763
1.000	0.665	0.998	0.965	0.957	1.436	0.900	1.436	0.965	0.644	0.532	0.644
2.000	0.333	0.499	0.535	0.427	0.641	0.450	0.641	0.535	0.357	0.266	0.357

Table 7. Spectral Ordinates (continued)

Period (s)	Computed Spectral Ordinate from Steps 1 through 11 (g)										
	Step Number										
	1	2	3	4	5	6	7	8	9	10	11
3.000	0.222	0.333	0.332	0.268	0.402	0.300	0.402	0.332	0.221	0.177	0.221
4.000	0.166	0.249	0.229	0.184	0.276	0.225	0.276	0.229	0.153	0.133	0.153

STEP 12 – COMPUTATION OF FINAL ACCELERATION PARAMETERS

Computation of the final acceleration parameters is requires comparing the values computed for S_{DS}, S_{D1}, S_{Ms}, and S_{M1} with limiting values in accordance with ACSE-7 Section 21.4. Table 8 summarizes the parameters used in Step 1, the Generalized Response Spectrum, and presents the final acceleration parameters in accordance with ASCE-7, Section 21.4.

Table 8. Final Acceleration Parameters

Parameter	Short Period (T_s = 0.2 second)	1-Second Period (T_1 = 1.0 second)
MCE Spectral Acceleration, S	1.813	0.665
Site Class	D	
Site Coefficient, F_a and F_v	1.0	1.5
Adjusted Spectral Acceleration, S_M	S_{MS} = 1.506 g	S_{M1} = 0.965 g
Design Spectral Response Acceleration Parameters, S_D	S_{DS} = 1.00 g	S_{D1} = 0.644 g

7.0 CONCLUSIONS

7.1 GENERAL

Based on our review of available information, the results of our explorations, and the laboratory testing and analyses, the proposed development is feasible from a geotechnical perspective. The site is free of geologic or seismic hazards that would preclude the proposed development. Although there is a potential for liquefaction settlement and strong ground shaking at the site, these hazards can be mitigated with proper design and construction practices.

The proposed buildings may be supported on drilled shaft foundations that develop their resistance in dense native soils at the site. Detailed discussion regarding our assumptions and drilled shaft capacity calculations is presented in the "Drilled Shaft Foundations" section of this report.

The building floor slab may be established on grade, provided the recommendations presented in the "Floor Slabs" section of this report are followed.

7.2 COMMENTS ON PRIOR DATA AND ANALYSIS

The data available from the prior explorations are useful for general background information and generally correlates well with the data obtained during our investigation with the following notable exceptions:

- Considerably less gravel was logged in our explorations than is reported in the prior borings
- Considerably more fine-grained layers were logged in our explorations than are reported in the prior borings

We attribute these differences to our ability to better identify these conditions through more frequent sampling and more intensive laboratory testing. It is worth noting that in our field classifications, we also logged more granular soils; however, upon further review and testing in our laboratory, many of those layers were changed based on the plasticity testing.

We also performed liquefaction analysis using the data from the prior explorations. However, the combination of limited sampling intervals and limited laboratory testing available from the prior investigations severely limits our ability to obtain meaningful results. This is because in order to properly identify the layering and various soil input parameters, considerable guesswork would be required. Therefore, utilizing the prior explorations and data in their current state is several degrees of precision below the level of analysis we performed with the current explorations.

It should be noted that for other sites, where the stratigrahpy is more uniform, the limited data available may be adequate.

8.0 RECOMMENDATIONS

The following sections present recommendations based on the results from our geotechnical evaluation of the site, prior geotechnical reports, our understanding of the proposed development, and our discussions with the project team.

8.1 DRILLED SHAFT FOUNDATIONS

8.1.1 Axial Capacity

Downward and upward axial shaft capacities for 18-, 24-, 30-, 36-, and 48-inch-diameter drilled shafts are presented on Figures 9 and 10, respectively.

The capacities presented on Figures 9 and 10 may be increased by one-third to resist short-term wind or seismic loading. These capacities are based on the strength of the subsurface materials; the strength of the shafts should also be checked for adequacy.

To develop the axial capacities presented on Figures 9 and 10, drilled shafts should extend at least 40 feet below the bottom of the pile caps. Please note that longer shafts may be necessary to develop lateral capacities as presented in Table 9.

In developing these capacities, we assumed the upper 10 feet of soils beneath the pile cap to be dense sand, the soils between 10 and 30 feet below the pile cap to be liquefiable, and the soils below 30 feet to be dense sand.

8.1.2 Settlement

We estimate static settlement of the one-story building to be on the order of ¼ inch or less and static settlement of the five-story tower will be ½ inch or less.

8.1.3 Lateral Capacities

We computed the lateral capacities of the piles using the computer program L-Pile, by ENSOFT, Inc. The resistance of the soils adjacent to 18-, 24-, 30-, 36-, and 48-inch diameter drilled shafts are presented in Table 9 for ½ inch deflection at the top of the shaft, assuming fixed-head conditions.

Table 9. Lateral Load Design Data – Drilled Shafts

	Shaft Diameter (inches)				
	18	24	30	36	48
Deflection (inches)	½	½	½	½	½
Lateral Design Load (kips)	60	100	140	185	280
Maximum Moment (foot-kips)	258	560	760	1,080	2,080
Depth to Maximum Moment (feet)	0	0	0	0	0
Depth to Zero Deflection (feet)	10	20	30	35	40
Depth to Zero Moment	25	30	35	40	45

The passive resistance of the soils acting against the face of the drilled shaft cap may also be used to resist lateral loading. A passive pressure equal to 400 psf per foot of depth may be used without reduction, in conjunction with the lateral shaft capacities presented above.

8.1.4 Construction Considerations

Drilled shaft excavations will encounter caving soils and shallow groundwater. Construction provisions to mitigate these conditions include the use of drilling mud and/or steel casing.

Concrete for drilled shafts shall be placed using a tremie in accordance with American Concrete Institute standards.

8.2 FLOOR SLABS

Fill is required at the site to raise the grade to the planned finish floor level. Prior to placement of new fill, the upper 2 feet of on-site soils should be removed and recompacted as specified in the "Site Preparation" section of this report.

Combined with the planned fill, the removal and re-compaction of the upper 2 feet will result in approximately 4 to 10 feet of properly compacted fill beneath the floor slabs.

The building floor slab may be established on properly compacted fill soils.

A capillary break should be installed beneath building floor slabs that will have moisture-sensitive flooring. The capillary break should consist of 4 inches of gravel underlying a 10-mil, HDPE membrane that is contained between two 2-inch-thick layers of clean sand.

For structural evaluation of the building floor slab, a subgrade modulus of 300 pci may be assumed. This value includes reductions for the size of the floor slab.

8.3 PAVEMENT

8.3.1 Asphalt Pavement

Table 10 presents the minimum recommended paving and base course thickness for traffic indices of 4, 5, and 7 based on an assumed R-value of 50 for imported fill materials. Our recommendations are based on the California Department of Transportation method of pavement design.

Table 10. AC Pavement and Base Thickness

Traffic Index	Traffic Use	AC (inches)	Base Course (inches)
4	Parking	3.0	4.0
5	Drive Lanes	4.0	6.0
7	Streets and Loading Dock	5.0	6.0

We can determine the recommended paving and base course thicknesses for other traffic indices if required. Careful inspection should be conducted to verify that the recommended thicknesses or greater are achieved and that proper construction procedures are followed.

8.3.2 PCC Sections

PCC paving sections were determined in accordance with procedures developed by the Portland Cement Association, assuming that the PCC will have a compressive strength of at least 4,000 psi.

Table 11 presents the minimum recommended concrete paving and base course thickness for PCC pavement.

Table 11. PCC Paving and Base Thickness for R-Value of 71

Traffic Index	Traffic Use	PCC (inches)	Base Course (inches)
4	Parking	4.0	4.0
5	Drive Lanes	5.0	4.0
7	Streets and Loading Dock	6.0	6.0

We can determine the recommended paving and base course thicknesses for other traffic indices if required. Careful inspection should be conducted to verify that the recommended thicknesses or greater are achieved and that proper construction procedures are followed.

8.4 SITE PREPARATION

Site preparation for this project will include the clearing and grubbing for the removal of all vegetation and the removal and re-compaction of the upper 2 feet of soils at the site.

All exposed bottoms should be carefully observed by our technician to insure the adequate removal of vegetation and also to check for the presence of localized soft or yielding layers.

The exposed bottoms, once approved by our technician, should be scarified for a depth of 6 inches and compacted to at least 95 percent of the maximum obtainable density per ASTM D 1557.

8.5 TEMPORARY SLOPES AND VERTICAL CUTS

Temporary, unsurcharged slopes should not exceed a 1H:1V gradient when constructed in existing fill and/or native materials. Such temporary slopes should not exceed 10 feet high.

Temporary vertical cuts that will be beneficial for foundation construction may be made into the dense, native materials, but should not exceed 4 feet in height.

Temporary cut slopes should be protected from erosion by directing surface water away from the top of the slopes by placing sand bags at the top of the slopes, and during wet weather, covering the slopes with plastic sheeting.

8.6 GRADING CONSIDERATIONS

8.6.1 General

If not carefully executed, site preparation can result in the presence of unsuitable (disturbed and/or excessively soft) soil conditions that may require additional effort to mitigate or in more extreme cases, if not detected, could result in significant costs to repair damage to flatwork or structures.

Earthwork should be planned and executed to minimize subgrade disturbance. Soil that has been disturbed during site preparation activities, and/or soft or loose zones identified during probing, should be removed beneath floor slabs.

8.6.2 Compaction

All granular fill materials should be compacted to at least 95 percent of the maximum dry density at or near the optimum moisture content as determined by ASTM D 1557. Cohesive fills should be compacted to at least 90 percent of the maximum dry density, as determined by ASTM D 1557, and moisture conditioned to 4 percent over the optimum moisture content.

Fill materials should be placed in loose lifts not exceeding 8 inches in thickness, properly moisture conditioned, and mechanically compacted to the minimum required density. For granular fills, compaction may be achieved using heavy equipment and vibration.

8.6.3 Site Drainage

Adequate site drainage should be maintained at all times. Site drainage should be collected and routed to suitable discharge points.

8.7 MATERIALS FOR FILL

8.7.1 General

Imported fill materials should be free of organic matter and other deleterious materials and, in general, should consist of particles no larger than 3 inches in largest dimension.

The following sections provide recommendations for the re-use of on-site materials in compacted fills and also for the use of imported materials in required fills.

8.7.2 On-Site Native Soils

The on-site soils native, granular soils are suitable for use in the required fills, provided that particles larger than 3 inches in largest dimension are removed. Where larger-sized materials are used, the percentage of these materials in a representative section of the fill should be limited to 5 percent.

8.7.3 Imported Granular Material

Imported fill materials should have a sand equivalent of at least 35 and should be approved by our firm prior to import to the site.

9.0 CONSTRUCTION OBSERVATION

Geotechnical testing and observation during construction is considered to be a continuing part of the geotechnical consultation. To confirm that the recommendations presented herein remain applicable, our representative should be present at the site to provide appropriate observation and testing.

As satisfactory foundation construction and grading depends on the quality of construction, it is essential that qualified personnel be present to perform the required geotechnical testing and inspection.

The presence of an experienced representative at the site during construction provides value and benefits to the project and can often result in schedule and cost savings for the owner by approaching the geotechnical testing and inspection responsibilities in a proactive and team-oriented manner.

10.0 LIMITATIONS

We have prepared this report for use by Universal Health Services and their design and construction team for this project. The data and report can be used for estimating purposes, but our report, conclusions, and interpretations should not be construed as a warranty of the subsurface conditions and are not applicable to other sites.

Soil borings indicate soil conditions only at specific locations and only to the depths penetrated. They do not necessarily reflect soil strata or water level variations that may exist between exploration locations. If subsurface conditions differing from those described are noted during the course of excavation and construction, re-evaluation will be necessary.

The recommendations presented in this report are based on the current site development plan and structural information provide to us by the project team. If design changes are made, we should be retained to review our conclusions and recommendations and to provide a written evaluation or modification.

The scope of our services does not include services related to construction safety precautions, and our recommendations are not intended to direct the contractor's methods, techniques, sequences or procedures, except as specifically described in our report for consideration in design.

Within the limitations of scope, schedule, and budget, our services have been executed in accordance with that degree of skill and care ordinarily exercised by reputable geotechnical consultants practicing in this area at the time this report was prepared. No warranty or other conditions, express or implied, should be understood.

♦ ♦ ♦

We sincerely appreciate the opportunity to be of service to you. Please call if you have questions concerning this report or if we can provide additional services.

Sincerely,

GeoDesign, Inc.

Susan F. Kirkgard, C.E.G.
Associate Engineering Geologist



Christopher J. Zadoorian, G.E.
Principal Engineer



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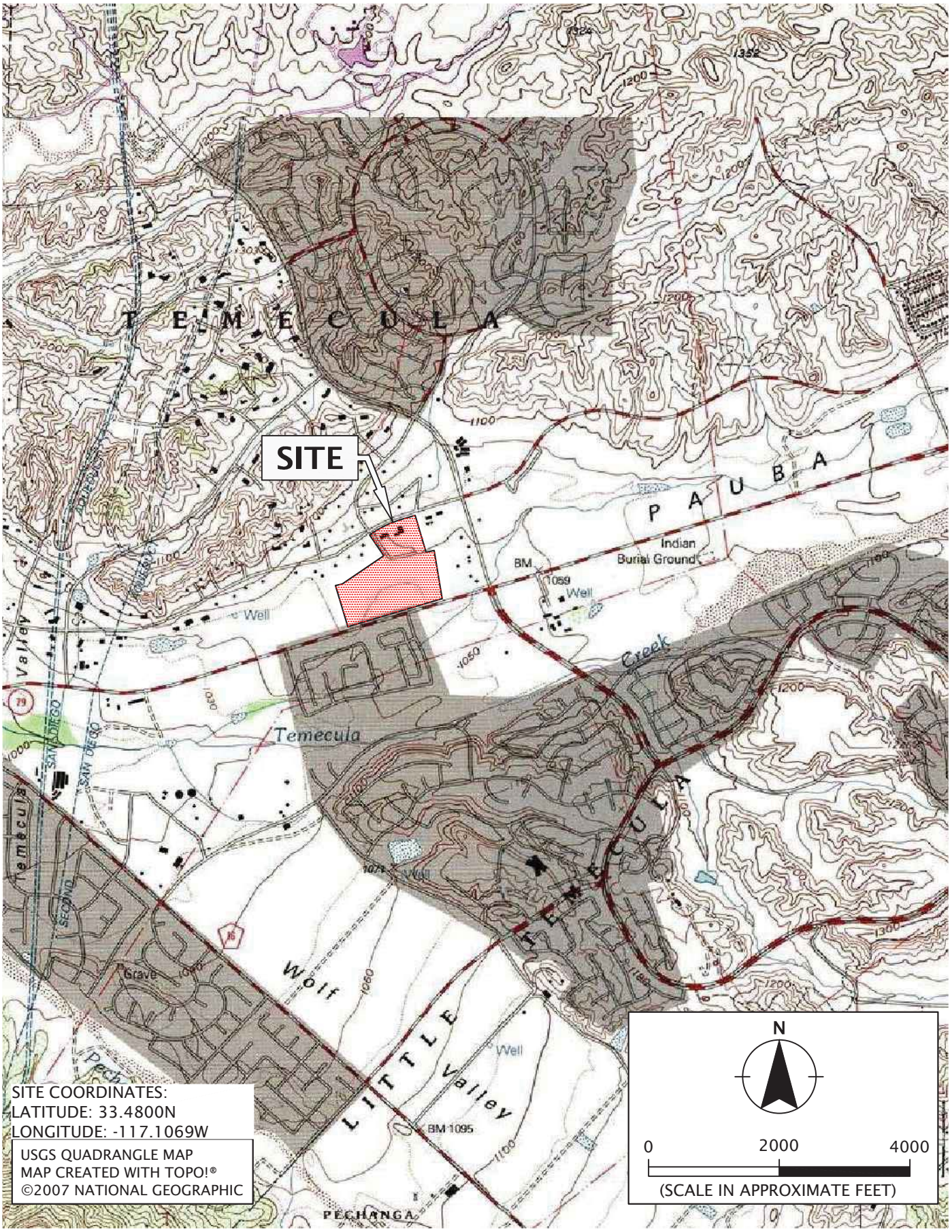
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FIGURES



GEODESIGN INC 2121 S Towne Centre Place - Suite 130 Anaheim CA 92806 Off 714.634.3701 Fax 714.634.3711	TURNERCONS-1-02	**VICINITY MAP**
	AUGUST 2010	PROPOSED TEMECULA HOSPITAL TEMECULA, CA — **FIGURE 1**

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LEGEND:

GDI B-1	BORING (GEODESIGN, INC., MAY AND JULY 2010)
B-1	PRIOR BORING (PSI, MARCH 2004)
CPT-1	PRIOR CONE PENETROMETER (PSI, MARCH 2004)
MR B1	PRIOR MUD-ROTARY BORING (PSI, JUNE 2006)
HS B1	PRIOR HOLLOW-STEM AUGER BORING (PSI, JUNE 2006)
MW-1	PRIOR GOUNDWATER MONITORING WELL (PSI)
A A'	CROSS SECTION

N

0 150 300

(SCALE IN FEET)

SITE PLAN BASED ON DRAWING PROVIDED BY TURNER CONSTRUCTION COMPANY JULY 8, 2010

SITE PLAN

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

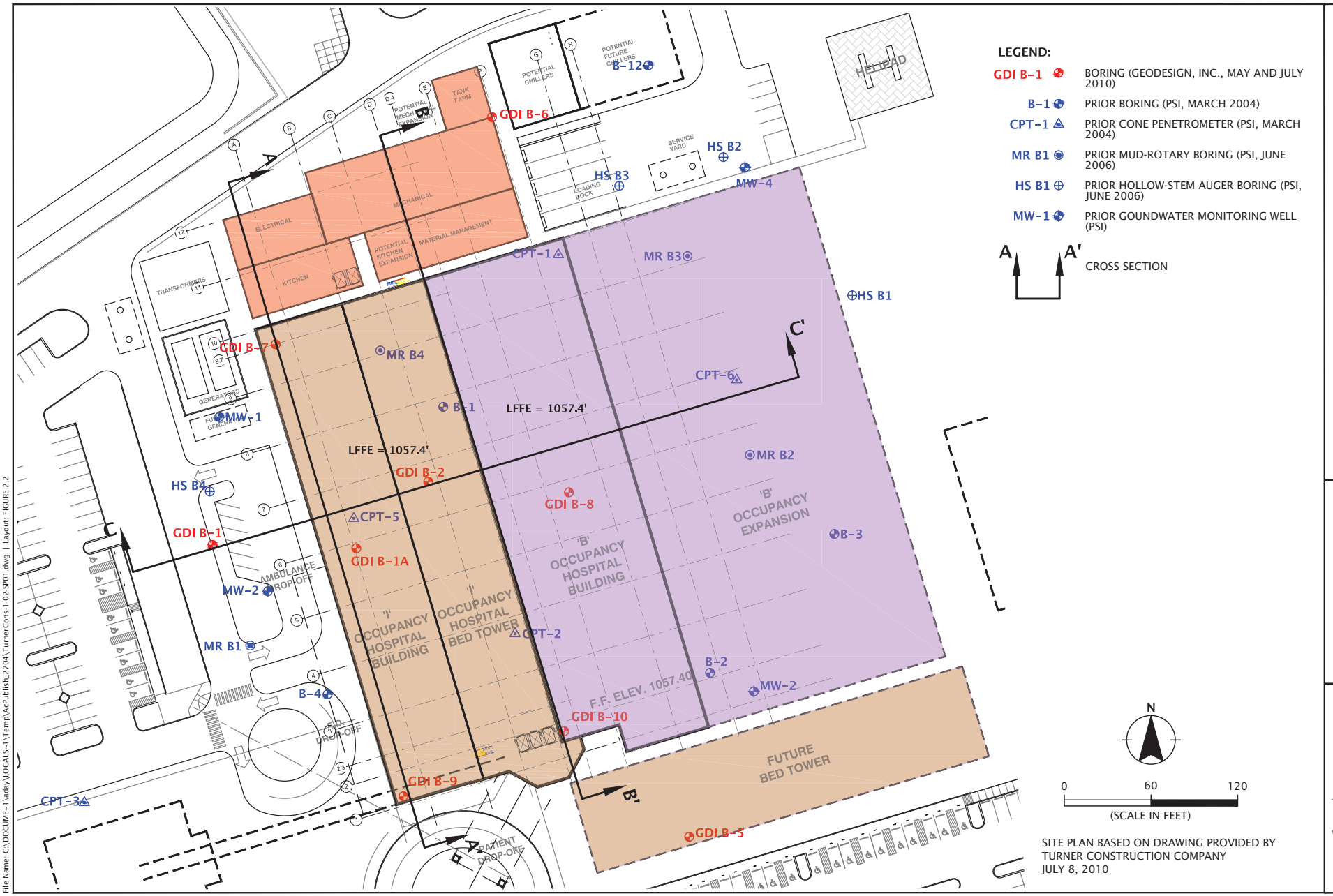
FIGURE 2.1

TURNERCONS-1-02

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SITE PLAN BASED ON DRAWING PROVIDED BY TURNER CONSTRUCTION COMPANY JULY 8, 2010

SITE PLAN

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE 2.2

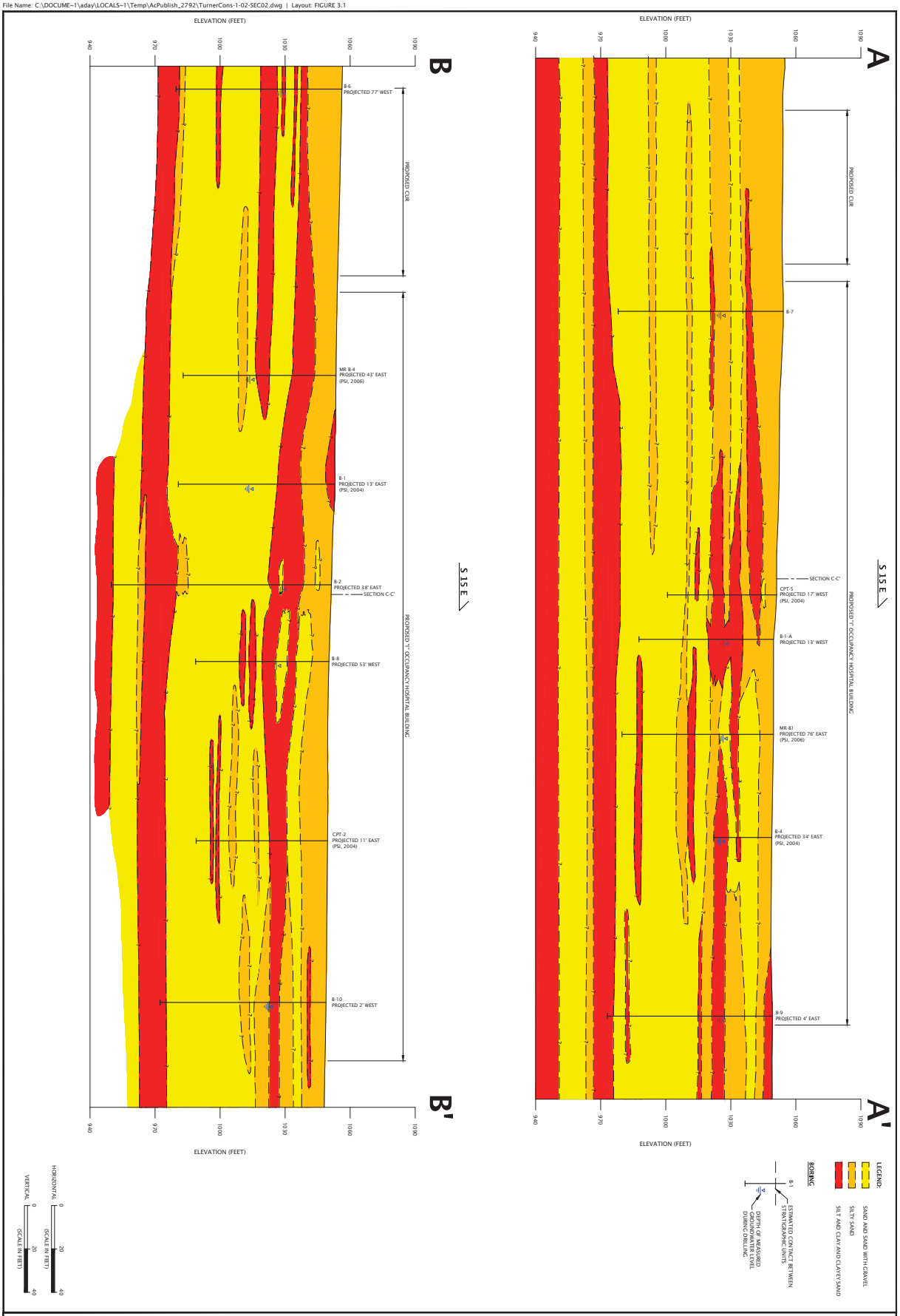
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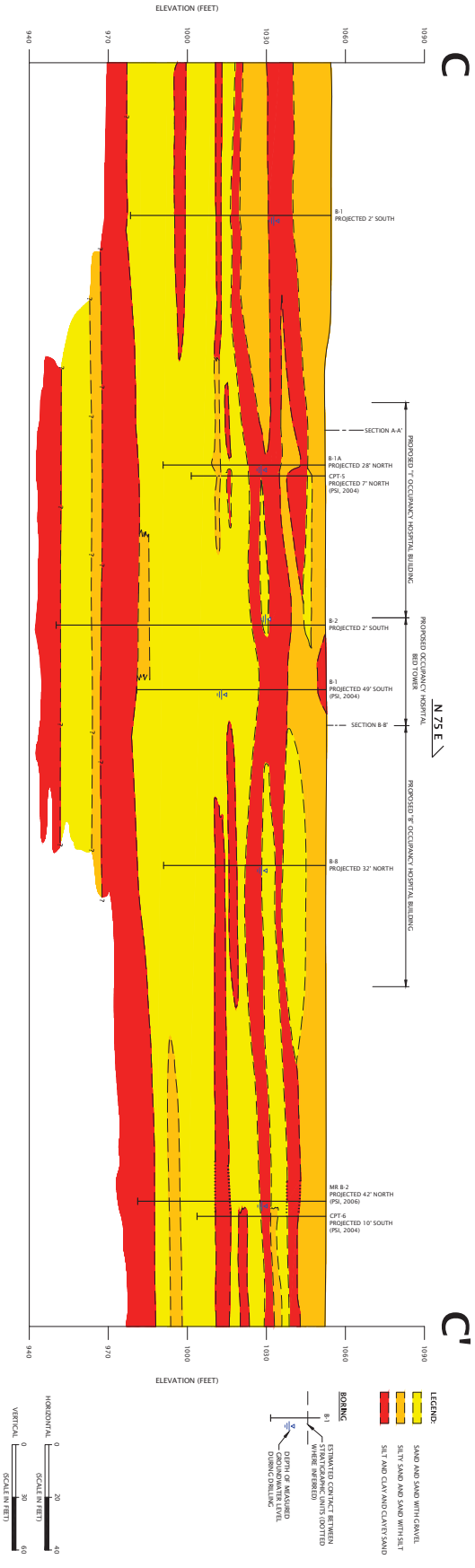
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DRAWN BY: CWD/AKD	APPROVED BY:		

NO.	DATE	REVISION DESCRIPTION	BY	APPR.
X	XX/XX/08	PRELIMINARY	GDI	GDI

TURNERCONS-1-02	GEOLOGIC SECTIONS	
AUGUST 2010	PROPOSED TEMECULA HOSPITAL TEMECULA, CA	FIGURE 3.1

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DRAWN BY: CWD	APPROVED BY:		

NO.	DATE	REVISION DESCRIPTION	BY	APPR.
X	XX/XX/08	PRELIMINARY	GDI	GDI

TURNERCONS-1-02	GEOLOGIC SECTIONS	
AUGUST 2010	PROPOSED TEMECULA HOSPITAL TEMECULA, CA	FIGURE 3.2

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SITE COORDINATES:
LATITUDE: 33.4800N
LONGITUDE: -117.1069W
SITE PLAN BASED ON USGS, 2000, "GEOLOGIC MAP OF THE PECHANGA 7.5' QUADRANGLE, SAN DIEGO AND RIVERSIDE COUNTIES, CALIFORNIA: DIGITAL DATABASE" VERSION1.0.

DESCRIPTION OF MAP UNITS

MODERN SURFICIAL DEPOSITS - Sediment that has been recently transported and deposited in channels and washes, on surfaces of alluvial fans and alluvial plains, and on hillslopes and in artificial fills. Soil-profile development is non-existant. Includes:

Qw Active channel and wash deposits (late Holocene) - Unconsolidated to locally poorly unconsolidated sand and gravel deposits in active washes of streams.

Qa Active alluvial flood plain deposits (late Holocene) - Unconsolidated to locally poorly unconsolidated sand and gravel deposits in active alluvial flood plains.

YOUNG SURFICIAL DEPOSITS - Sedimentary units that are slightly consolidated to cemented and slightly to moderately dissected. Alluvial fan deposits typically have high coarse:fine clast ratios. Younger surficial units have upper surfaces that are capped by slight to moderately developed pedogenic-soil profiles. Includes:

Qya Young alluvial flood plain deposits (Holocene and late Pleistocene) - Mostly poorly consolidated, poorly sorted, permeable flood plain deposits.

Qyc Young colluvial deposits (Holocene and late Pleistocene) - Mostly poorly consolidated and poorly sorted slope wash and stream deposits.

Qyf Young alluvial fan deposists (Holocene and late Pleistocene) - Mostly poorly consolidated and very poorly sorted sand, gravel, cobble and boulder deposits in young alluvial fans.

OLD SURFICIAL DEPOSITS - Sediments that are moderately consolidated and slightly to moderately dissected. Older surficial deposits have upper surfaces that are capped by moderate to well-developed pedogenic soils. Includes:

Qoa Older alluvial flood plain deposits (Pleistocene, younger than 500,000 years) - Mostly moderately well consolidated, poorly sorted, permeable flood plain depositts.

Qoc Older colluvial deposits (Pleistocene, younger than 500,000 years) - Mostly moderately well consolidated, poorly sorted slope wash and stream deposits.

Qof2 Older fan deposits (Pleistocene, younger than 500,000 years) - Mostly poorly consolidated fan, debris flow and talus deposits. Clasts possess a moderately well developed clay coating but are otherwise fresh.

VERY OLD SURFICIAL UNITS - Sediments that are slightly to well consolidated to indurated, and moderately to well dissected. Upper surfaces are capped by moderate to well-developed pedogenic soils. Includes:

Qvoa Very old alluvial flood plain deposits (early Pleistocene) - Mostly well-indurated, poorly sorted, semi-permeable clay and sand flood plain deposits.

Qvoc Very old colluvial deposits (early Pleistocene) - Mostly well-indurated, poorly sorted, hillslope, clay and sand colluvial deposits.

Qvof Very old alluvial fan deposits (early Pleistocene) - Mostly very well-indurated, reddish-brown, sand and cobble, early Pleistocene aluvial fan deposits.

Qp Pauba Formation (early Pleistocene) - Light-brown moderately well-indurated, extensively crossbedded, channeled and filled sandstone and siltstone that contains occassional intervening cobble-and -boulder conglomerate beds.

BEDROCK UNITS

Tt Temecula Arkose (Pleistocene) - Pale greenish-yellow, well-indurated, medium- and coarse-grained sandstone with thin interstratified beds of fine-grained, tuffaceous sandstone, siltstone, and claystone. Pebble and cobble conglomerate interbeds composed of locally derived basement rock clasts are also common and range in thickness from a few centimeters to a meter or more.

Kr Granodiorite of Rainbow (Cretaceous) - Leucocratic hornblende-biotite granodiorite; medium- to coarse-grained, massive.

MAP SYMBOLS

- Contact between map units.
- Fault - dashed where inferred, dotted where concealed. Arrow and number indicate direction and angle of dip of fault plane.
- Anticline - solid where accurately located; dotted where concealed.
- Syncline - solid where accurately located; dotted where concealed.
- Strike and dip of inclined sedimentary beds.
- Strike and dip of overturned sedimentary beds.
- Strike and dip of foliation.
- Strike of vertical foliation.

LOCAL GEOLOGY

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE 4

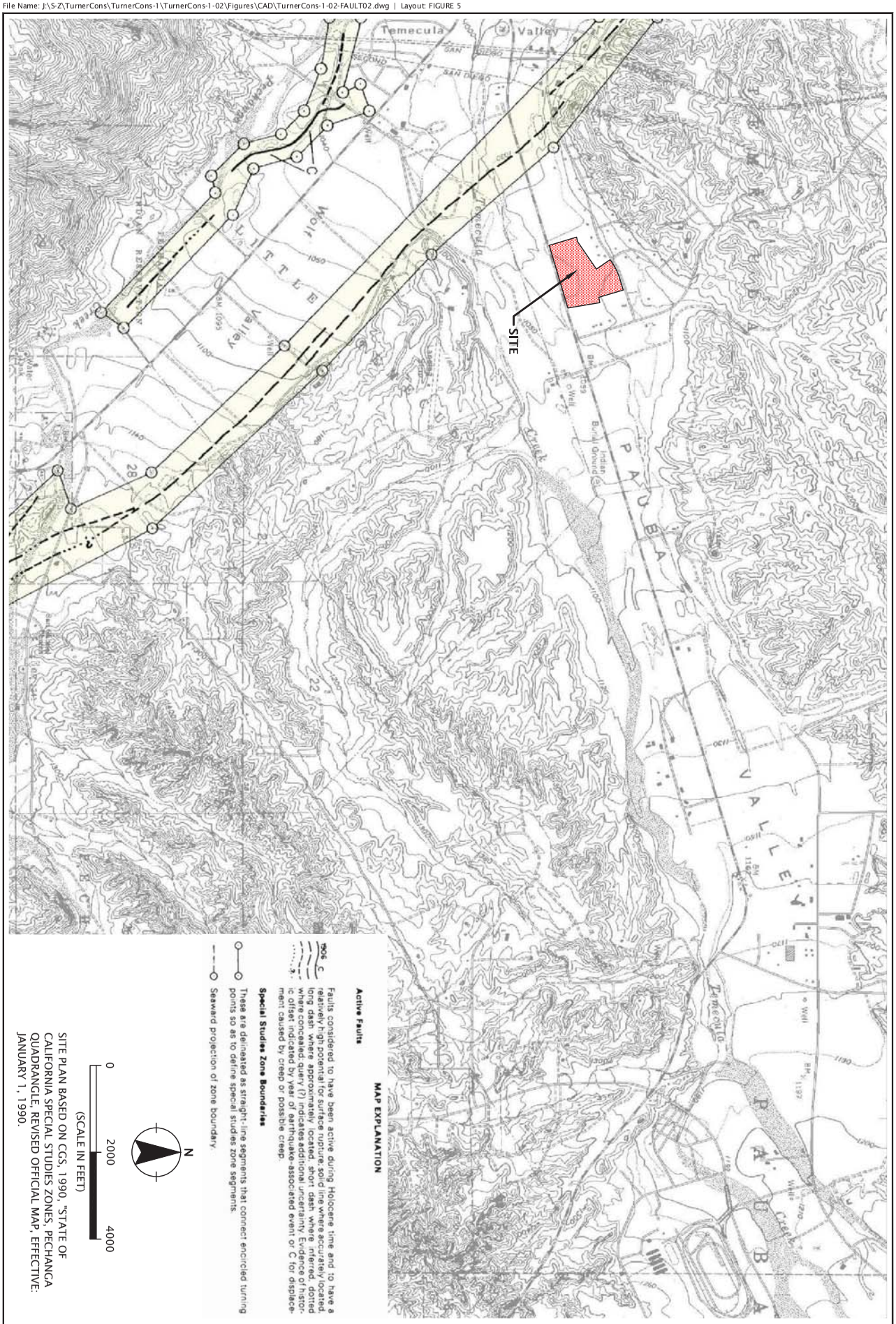
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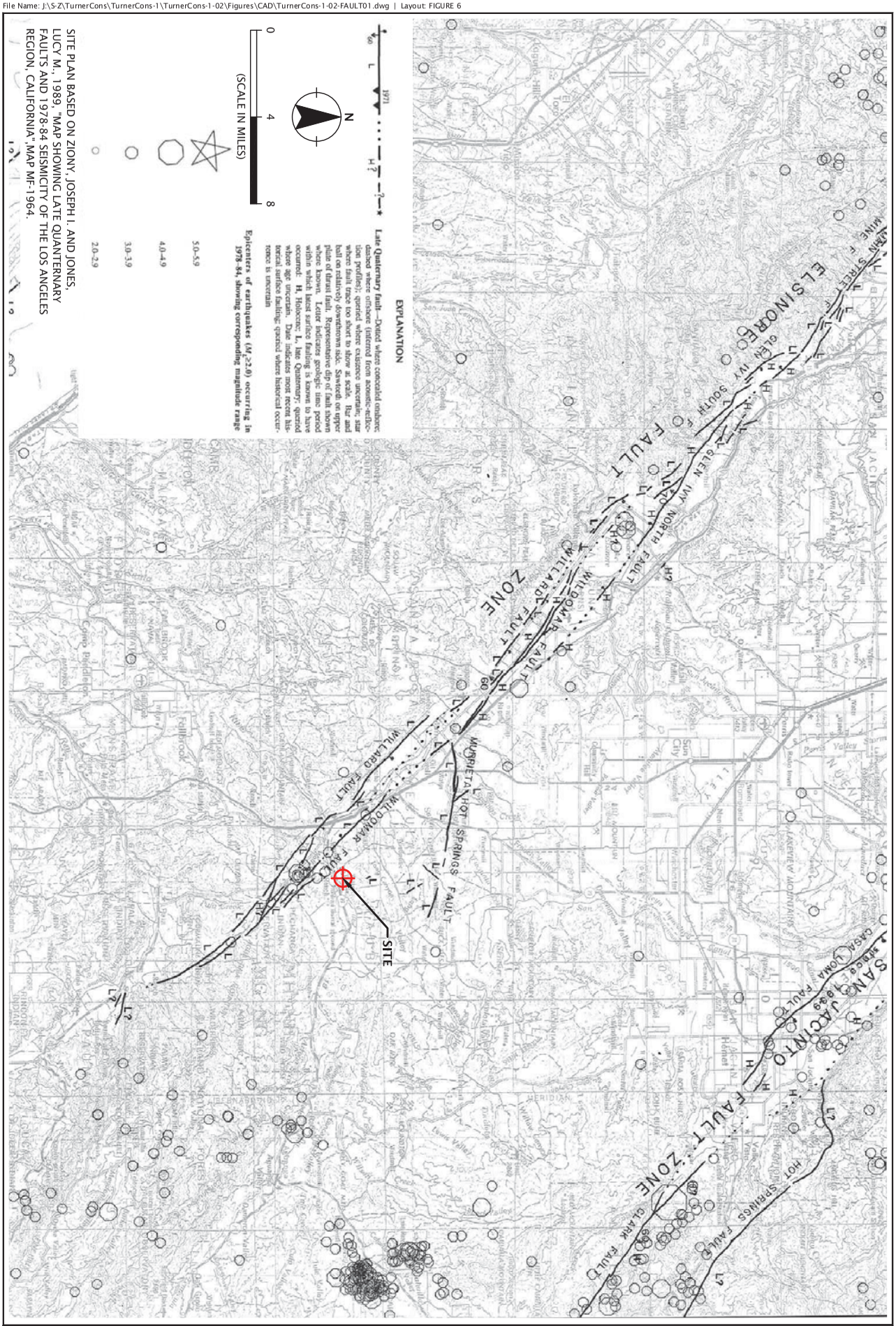
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GEODESIGN INC 2121 S Towne Centre Place - Suite 130 Anaheim CA 92806 Off 714.634.3701 Fax 714.634.3711	TURNERCONS-1-02	**ALQUIST-PRIOLO FAULT MAP**	
	AUGUST 2010	PROPOSED TEMECULA HOSPITAL TEMECULA, CA	**FIGURE 5**

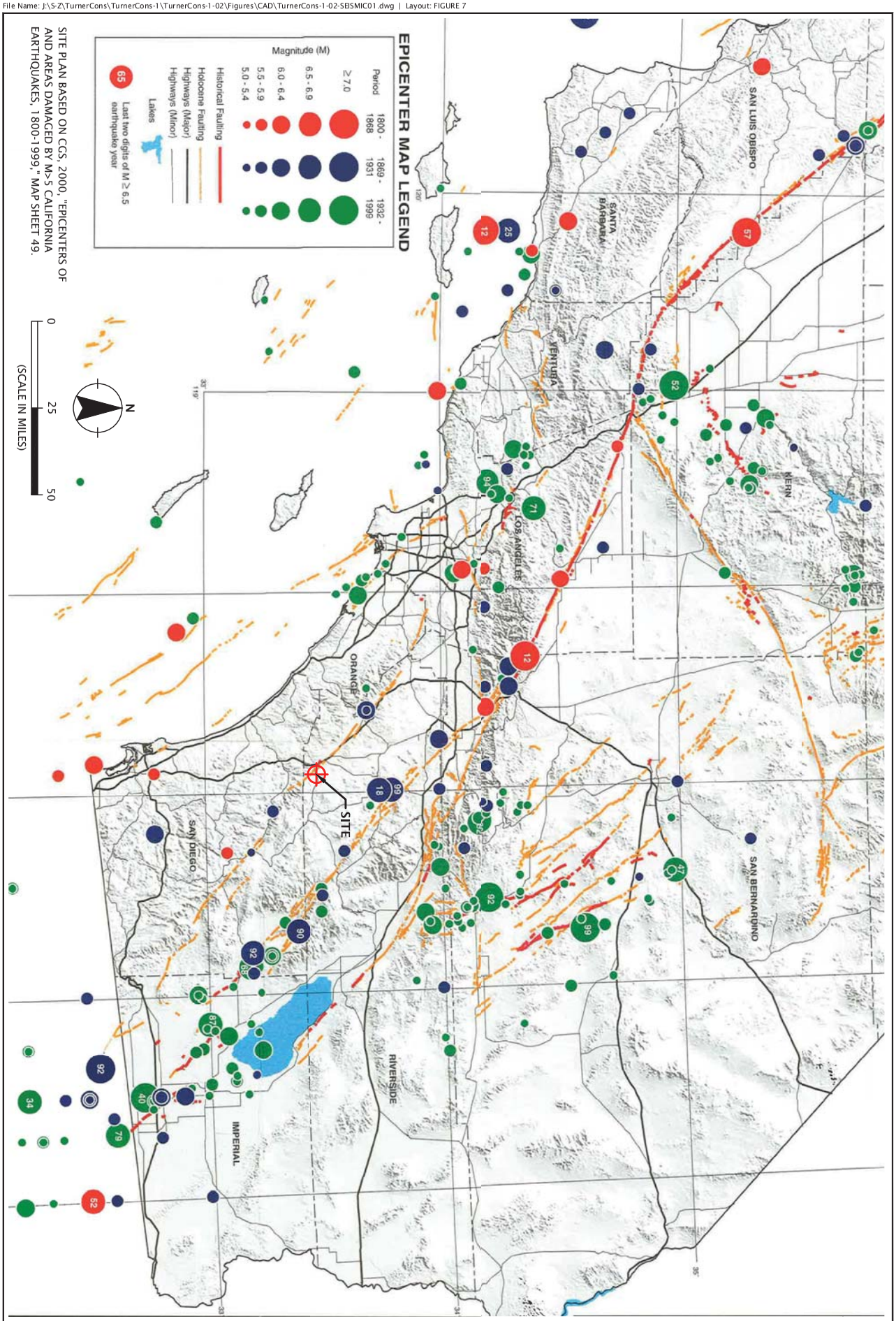
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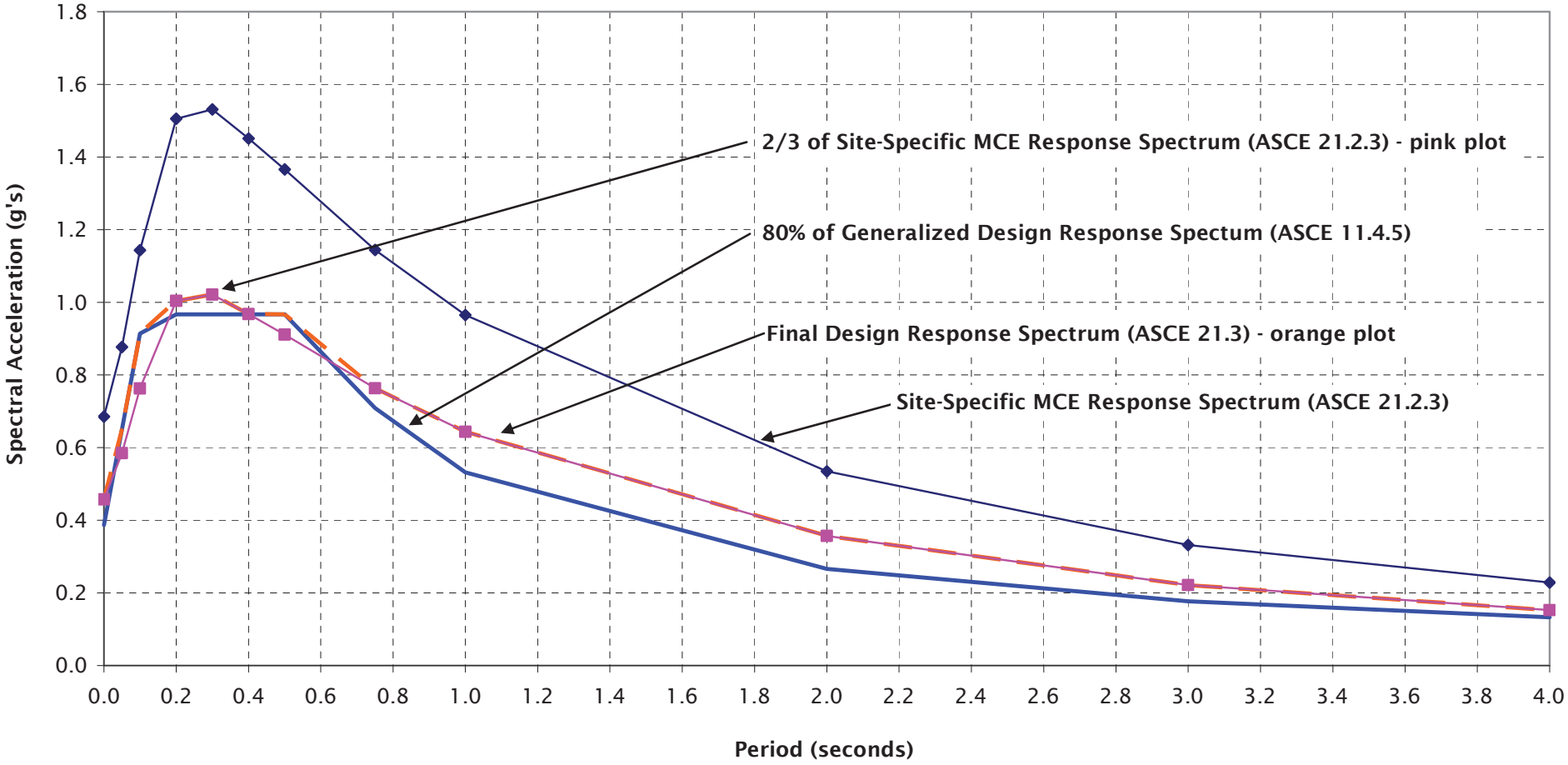
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TURNERCONS-1-02	**REGIONAL FAULT MAP**	
AUGUST 2010	PROPOSED TEMECULA HOSPITAL TEMECULA, CA	**FIGURE 6**

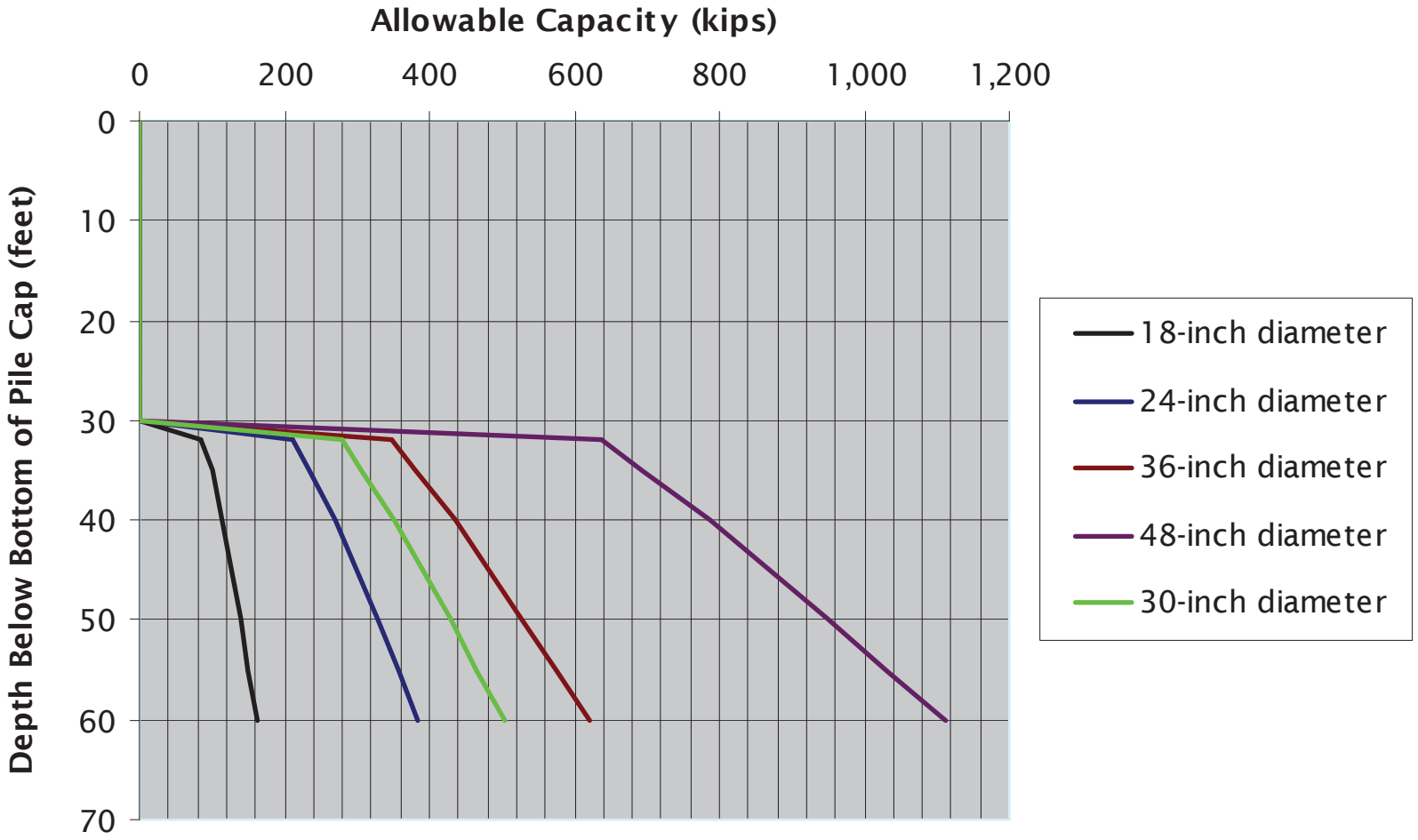


GEODESIGN INC 2121 S Towne Centre Place - Suite 130 Anaheim CA 92806 Off 714.634.3701 Fax 714.634.3711	TURNERCONS-1-02	HISTORIC SEISMICITY	
	AUGUST 2010	PROPOSED TEMECULA HOSPITAL TEMECULA, CA	FIGURE 7



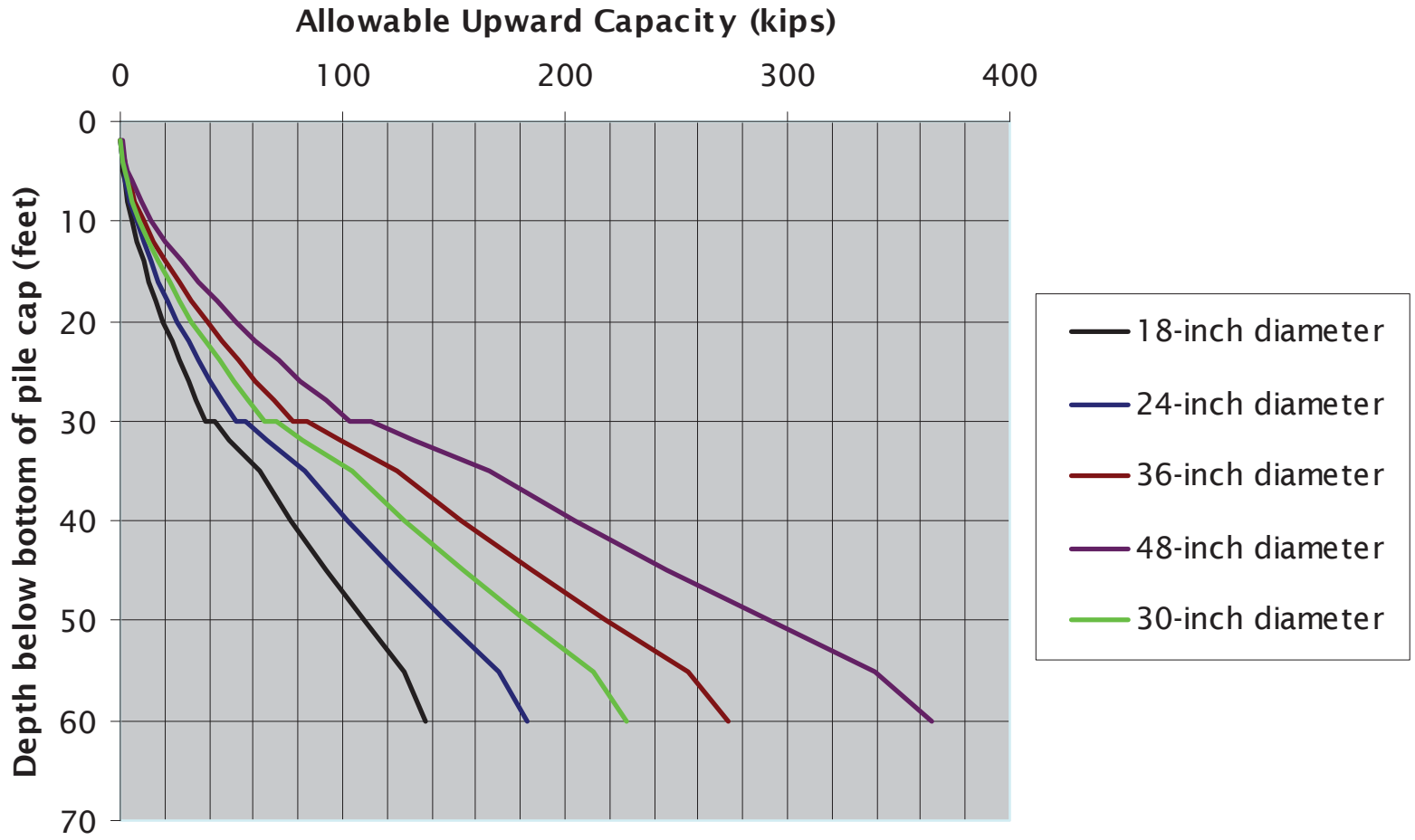
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TURNERCONS-1-02	**FINAL DESIGN RESPONSE SPECTRUM**	
AUGUST 2010	PROPOSED TEMECULA HOSPITAL TEMECULA, CA	**FIGURE 8**



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TURNERCONS-1-02	**DOWNWARD SHAFT CAPACITIES**	
AUGUST 2010	PROPOSED TEMECULA HOSPITAL TEMECULA, CA	**FIGURE 9**



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TURNERCONS-1-02	**UPWARD SHAFT CAPACITIES**	
AUGUST 2010	PROPOSED TEMECULA HOSPITAL TEMECULA, CA	**FIGURE 10**

APPENDIX A

APPENDIX A

FIELD EXPLORATIONS

GENERAL

Eleven borings were drilled by SoCal Drilling Company as part of our current investigation for the proposed hospital development in Temecula, California, at the locations shown on Figure 2.1 and 2.2. The borings were drilled in May and July 2010 using a mud-rotary, truck-mounted drill rig within and in close proximity to the footprint of the proposed hospital buildings.

The boring locations and elevations were surveyed in the field by Excel Engineering of Escondido, California, prior to our field mobilizations.

The borings were logged by a licensed engineering geologist and licensed geotechnical engineer who maintained a continuous log of the explorations. Representative bulk and undisturbed samples of the various soils encountered were obtained for geotechnical laboratory testing. Classifications and sampling intervals are presented on the exploration logs included as Figures A-1 through A-11 in this appendix.

SOIL SAMPLING

We performed closely spaced sampling intervals of 2.5 feet, using SPT and California split-spoon samplers between depths of approximately 30 and 60 feet BGS. Blow counts by the inch were recorded between these depths (excluding boring B-8). The summary of the blow count information for each boring is presented at the end of this appendix.

SPTs were performed in the borings in general accordance with ASTM D 1586. The 2-inch-diameter, split-spoon sampler was driven into the soil with a 140-pound hammer free-falling 30 inches. The SPT sampler was driven a total of 18 inches or to refusal. The number of blows required to drive the sampler the final 12 inches was recorded on the exploration log included in this appendix, unless otherwise noted.

Samples for laboratory testing were obtained from the borings using a modified California split-spoon sampler in general accordance with ASTM D 3550. The split-spoon sampler was driven into the soil with a 40-pound hammer free-falling 30 inches. The sampler was driven a total of 18 inches or to refusal. The number of blows required to drive the sampler the final 12 inches was recorded on the log included in this appendix, unless otherwise noted.

SOIL CLASSIFICATION

The soil samples were classified in accordance with the "Exploration Key" (Table A-1) and "Soil Classification System" (Table A-2), which are included in this appendix. The exploration logs indicate the depths at which the soils or their characteristics change, although the change actually could be gradual. If the change occurred between samples locations, the depth was interpreted. Classifications and sampling intervals are presented on the exploration logs included in this appendix.

LABORATORY TESTING

CLASSIFICATION

The soil samples were classified in the laboratory to confirm field classifications. The laboratory classifications are presented on the exploration logs included in this appendix.

MOISTURE CONTENT

We tested the natural moisture content of selected samples obtained from the explorations in general accordance with ASTM D 2216. The natural moisture content is a ratio of the weight of the water to soil in a test sample and is expressed as a percentage. The moisture contents are presented on the exploration logs included in this appendix.

DRY DENSITY

We tested selected soil samples to determine the in situ dry density. The tests were performed in general accordance with ASTM D 2937. The dry density is defined as the ratio of the dry weight of the soil sample to the volume of that sample. The dry densities are presented on the exploration logs included in this appendix.

ATTERBERG LIMITS

The plastic limit and liquid limit (Atterberg limits) of 28 soil samples were determined in accordance with guidelines presented in ASTM D 2937. The results of the Atterberg limit tests are included as Figure A-12 in this appendix.

CONSOLIDATION

We performed a consolidation tests on one undisturbed sample. The consolidation test was conducted in general accordance with ASTM D 2435. The results of the consolidation test is included as Figure A-13 in this appendix.

STRENGTH TESTING

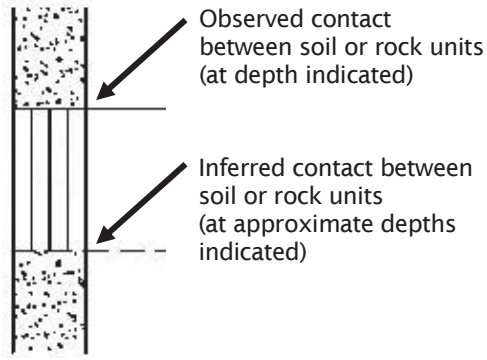
Direct shear tests were performed on 10 undisturbed samples. The direct shear tests were conducted in general accordance with ASTM D 3080. The results of the direct shear tests are presented on Figure A-14 in this appendix.

GRAIN SIZE TESTS

We performed percent fines testing on select samples. The percent fines determinations were performed in general accordance with guidelines presented in ASTM D 422 and ASTM D 1140. The results of the percent fines testing are presented on the exploratory logs on Figure A-15 in this appendix.

SYMBOL	SAMPLING DESCRIPTION
	Location of sample obtained in general accordance with ASTM D 1586 Standard Penetration Test with recovery
	Location of sample obtained using thin-wall Shelby tube or Geoprobe® sampler in general accordance with ASTM D 1587 with recovery
	Location of sample obtained using Dames & Moore sampler and 300-pound hammer or pushed with recovery
	Location of sample obtained using Dames & Moore or 3-inch-O.D. split-spoon sampler and 140-pound hammer or pushed with recovery
	Location of grab sample
	Rock coring interval
	Water level during drilling
	Water level taken on date shown

Graphic Log of Soil and Rock Types



GEOTECHNICAL TESTING EXPLANATIONS

ATT	Atterberg Limits	P	Pushed Sample
CBR	California Bearing Ratio	PP	Pocket Penetrometer
CON	Consolidation	P200	Percent Passing U.S. Standard No. 200 Sieve
DD	Dry Density	RES	Resilient Modulus
DS	Direct Shear	SIEV	Sieve Gradation
HYD	Hydrometer Gradation	TOR	Torvane
MC	Moisture Content	UC	Unconfined Compressive Strength
MD	Moisture-Density Relationship	VS	Vane Shear
OC	Organic Content	kPa	Kilopascal

ENVIRONMENTAL TESTING EXPLANATIONS

CA	Sample Submitted for Chemical Analysis	ND	Not Detected
P	Pushed Sample	NS	No Visible Sheen
PID	Photoionization Detector Headspace Analysis	SS	Slight Sheen
ppm	Parts per Million	MS	Moderate Sheen
		HS	Heavy Sheen

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EXPLORATION KEY

TABLE A-1

RELATIVE DENSITY - COARSE-GRAINED SOILS

Relative Density	Standard Penetration Resistance	Dames & Moore Sampler (140-pound hammer)	Dames & Moore Sampler (300-pound hammer)
Very Loose	0 – 4	0 - 11	0 - 4
Loose	4 – 10	11 - 26	4 - 10
Medium Dense	10 – 30	26 - 74	10 - 30
Dense	30 – 50	74 - 120	30 - 47
Very Dense	More than 50	More than 120	More than 47

CONSISTENCY - FINE-GRAINED SOILS

Consistency	Standard Penetration Resistance	Dames & Moore Sampler (140-pound hammer)	Dames & Moore Sampler (300-pound hammer)	Unconfined Compressive Strength (tsf)
Very Soft	Less than 2	Less than 3	Less than 2	Less than 0.25
Soft	2 - 4	3 – 6	2 - 5	0.25 - 0.50
Medium Stiff	4 - 8	6 – 12	5 - 9	0.50 - 1.0
Stiff	8 - 15	12 – 25	9 - 19	1.0 - 2.0
Very Stiff	15 - 30	25 – 65	19 – 31	2.0 - 4.0
Hard	More than 30	More than 65	More than 31	More than 4.0

PRIMARY SOIL DIVISIONS			GROUP SYMBOL	GROUP NAME
COARSE-GRAINED SOILS (more than 50% retained on No. 200 sieve)	GRAVEL (more than 50% of coarse fraction retained on No. 4 sieve)	CLEAN GRAVELS (< 5% fines)	GW or GP	GRAVEL
		GRAVEL WITH FINES (≥ 5% and ≤ 12% fines)	GW-GM or GP-GM	GRAVEL with silt
			GW-GC or GP-GC	GRAVEL with clay
		GRAVELS WITH FINES (> 12% fines)	GM	silty GRAVEL
			GC	clayey GRAVEL
			GC-GM	silty, clayey GRAVEL
	SAND (50% or more of coarse fraction passing No. 4 sieve)	CLEAN SANDS (<5% fines)	SW or SP	SAND
		SANDS WITH FINES (≥ 5% and ≤ 12% fines)	SW-SM or SP-SM	SAND with silt
			SW-SC or SP-SC	SAND with clay
		SANDS WITH FINES (> 12% fines)	SM	silty SAND
			SC	clayey SAND
			SC-SM	silty, clayey SAND
FINE-GRAINED SOILS (50% or more passing No. 200 sieve)	SILT AND CLAY	Liquid limit less than 50	ML	SILT
			CL	CLAY
			CL-ML	silty CLAY
			OL	ORGANIC SILT or ORGANIC CLAY
		Liquid limit 50 or greater	MH	SILT
			CH	CLAY
			OH	ORGANIC SILT or ORGANIC CLAY
HIGHLY ORGANIC SOILS			PT	PEAT

MOISTURE CLASSIFICATION

Term	Field Test
dry	very low moisture, dry to touch
moist	damp, without visible moisture
wet	visible free water, usually saturated

ADDITIONAL CONSTITUENTS

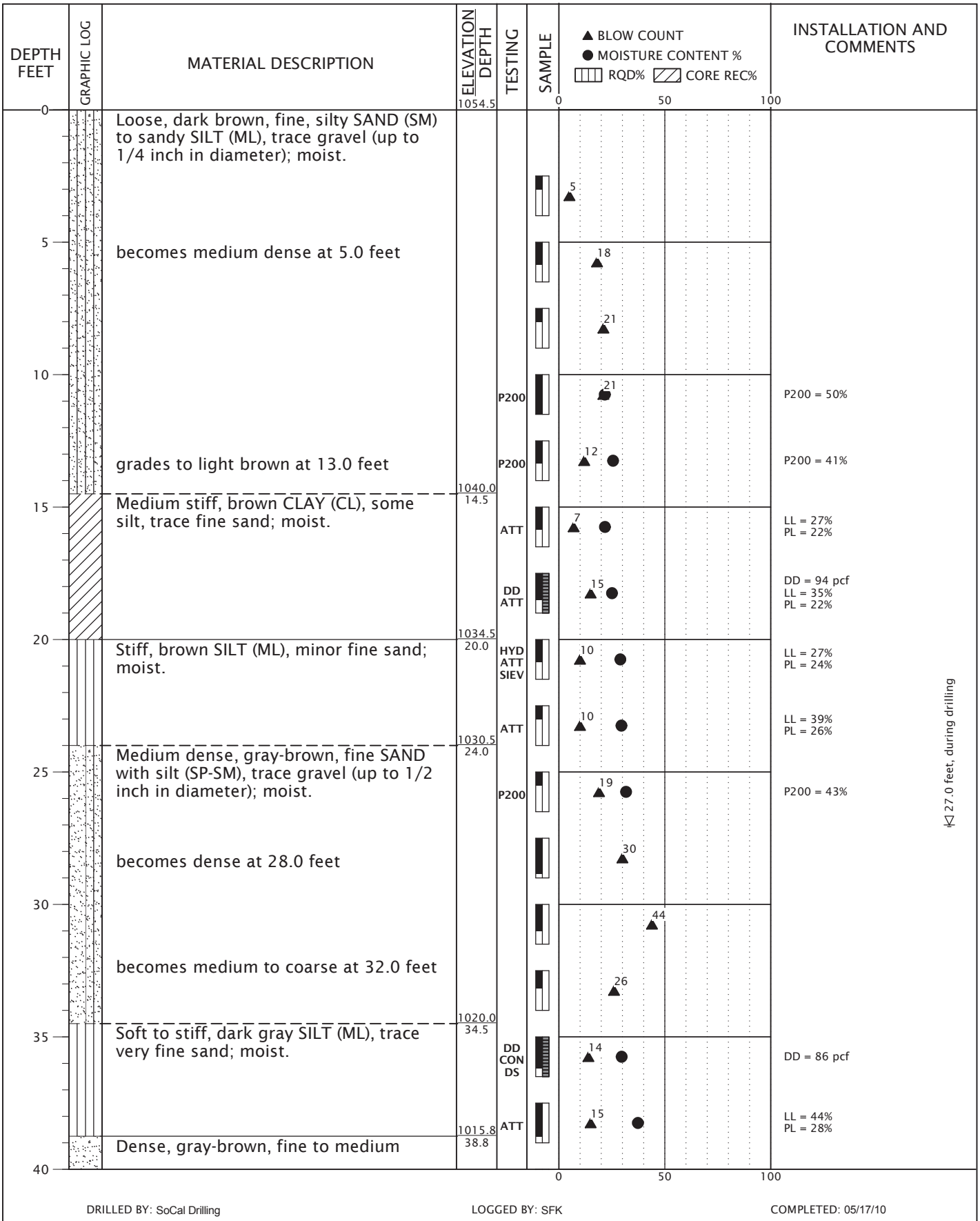
Secondary granular components or other materials such as organics, man-made debris, etc.

Percent	Silt and Clay In: Fine-Grained Soils	Silt and Clay In: Coarse-Grained Soils	Percent	Sand and Gravel In: Fine-Grained Soils	Sand and Gravel In: Coarse-Grained Soils
< 5	trace	trace	< 5	trace	trace
5 – 12	minor	with	5 – 15	minor	minor
> 12	some	silty/clayey	15 – 30	with	with
			> 30	sandy/gravelly	sandy/gravelly

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SOIL CLASSIFICATION SYSTEM

TABLE A-2



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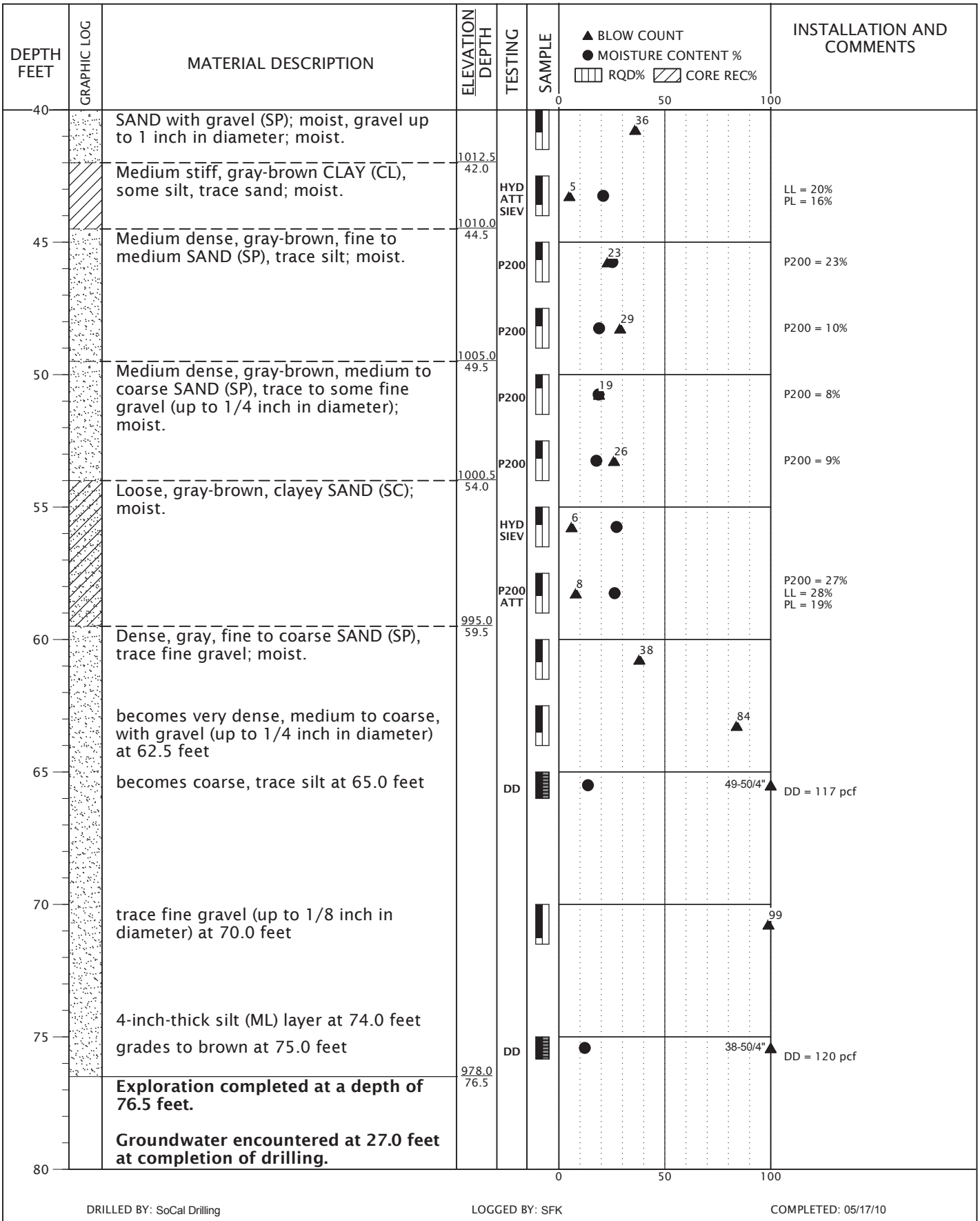
TURNERCONS-1-02

BORING B-1

AUGUST 2010

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-1



DRILLED BY: SoCal Drilling

LOGGED BY: SFK

COMPLETED: 05/17/10

BORING METHOD: mud rotary (see report text)

BORING BIT DIAMETER: 4 7/8-inch

BORING LOG TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/12/10:KT

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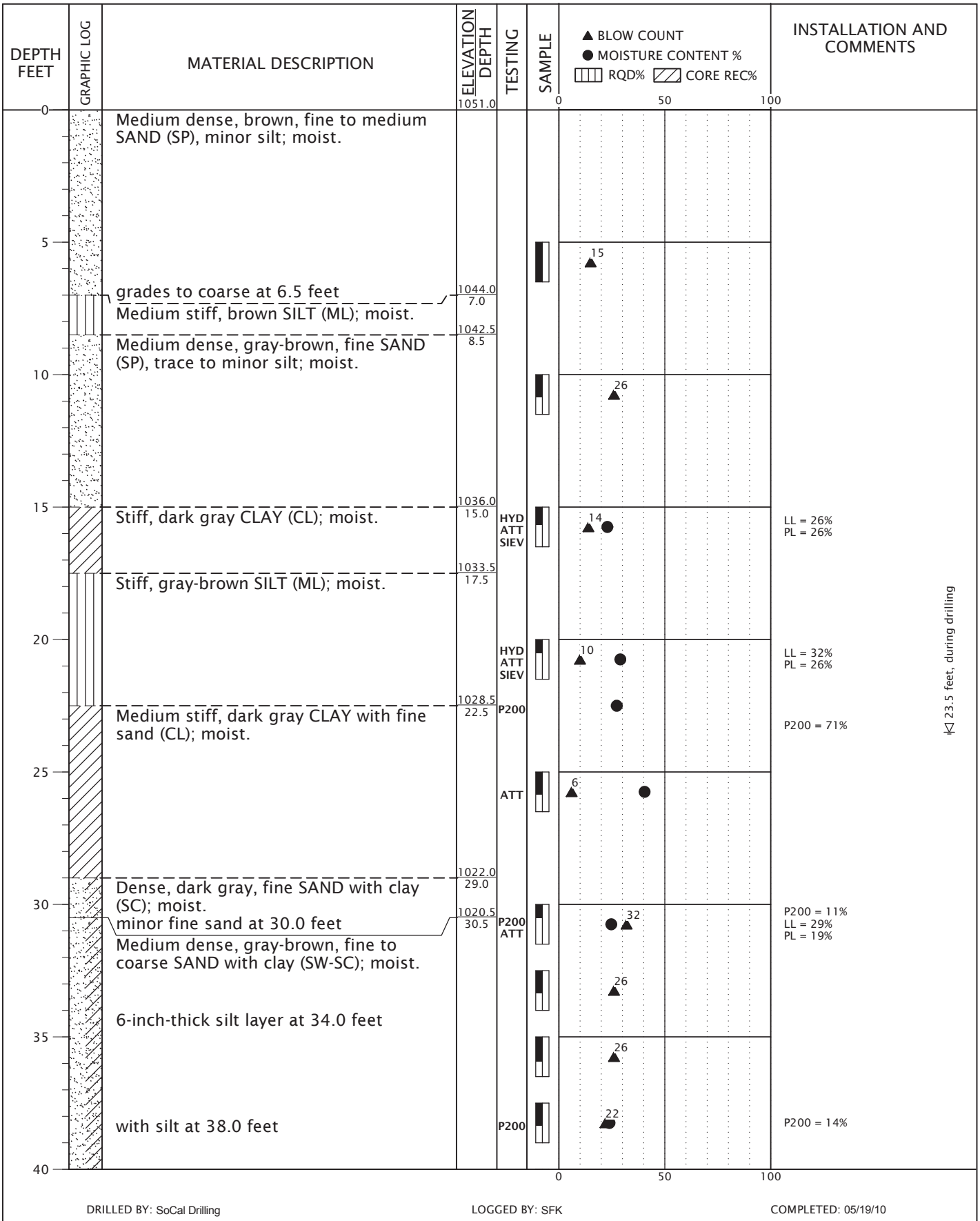
TURNERCONS-1-02

BORING B-1
(continued)

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PROPOSED TEMECULA HOSPITAL
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FIGURE A-1



BORING LOG TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/12/10:KT

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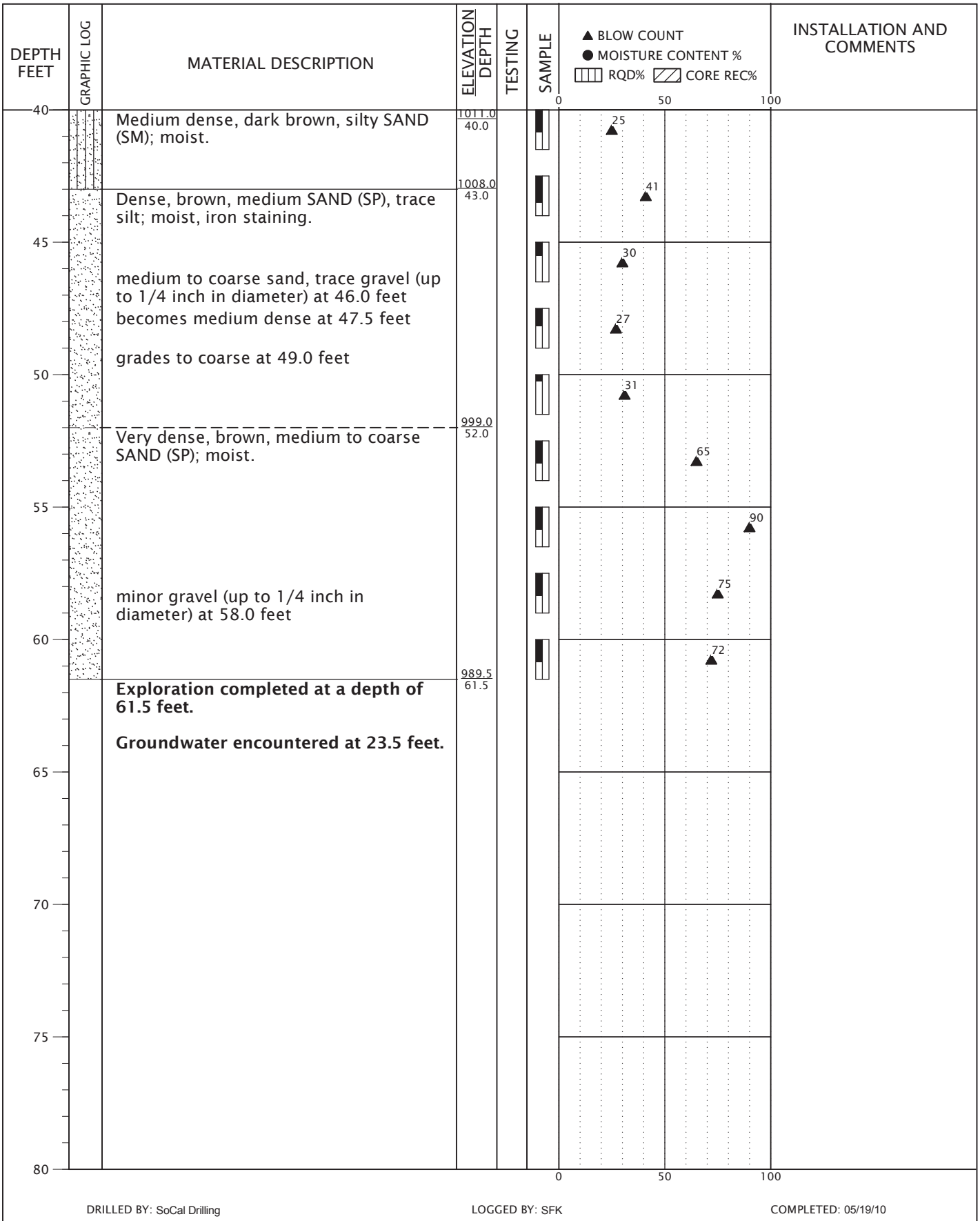
TURNERCONS-1-02

BORING B-1A

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FIGURE A-2



BORING LOG TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/12/10:KT

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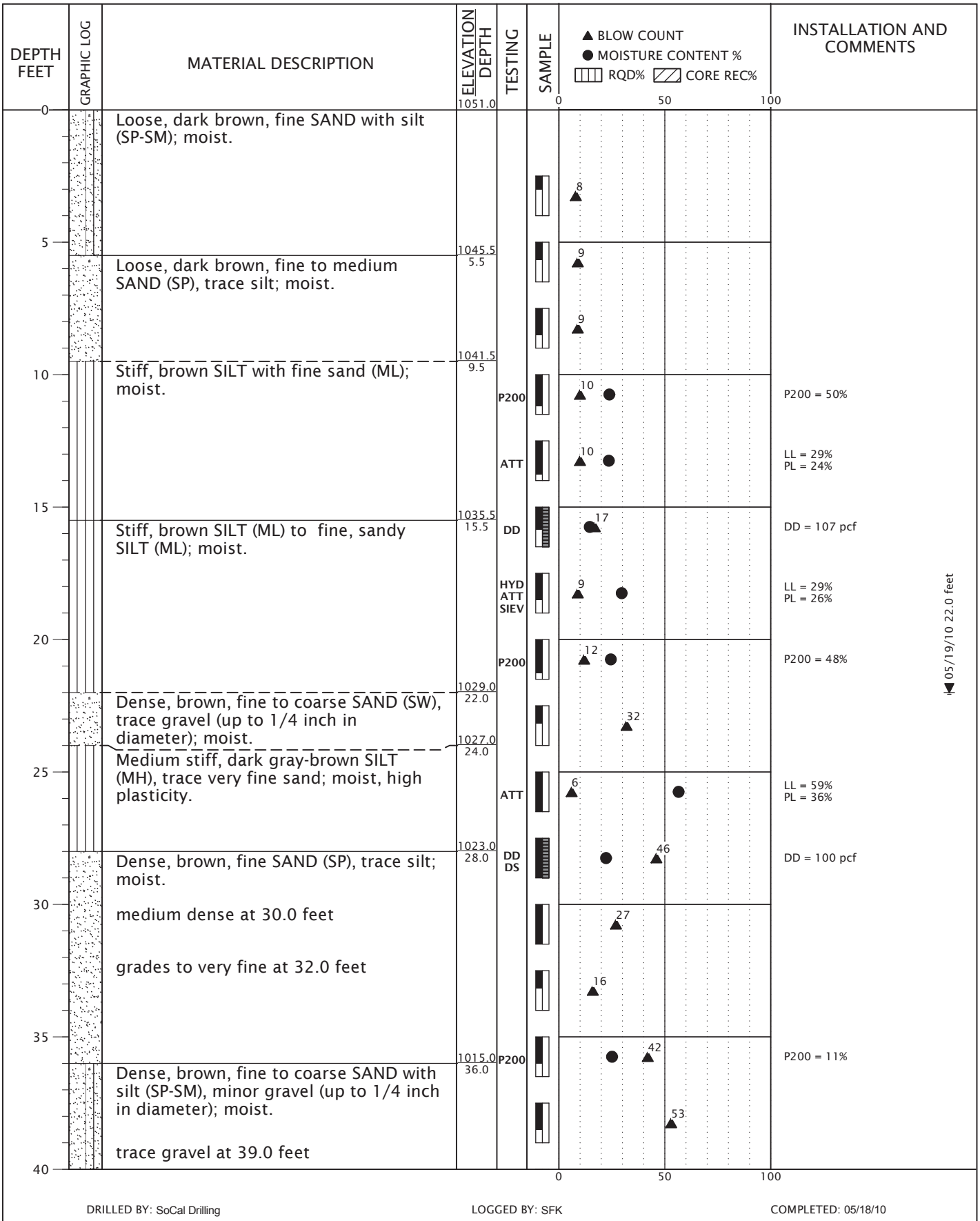
TURNERCONS-1-02

BORING B-1A
(continued)

AUGUST 2010

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-2



DRILLED BY: SoCal Drilling

LOGGED BY: SFK

COMPLETED: 05/18/10

BORING METHOD: mud rotary (see report text)

BORING BIT DIAMETER: 4 7/8-inch

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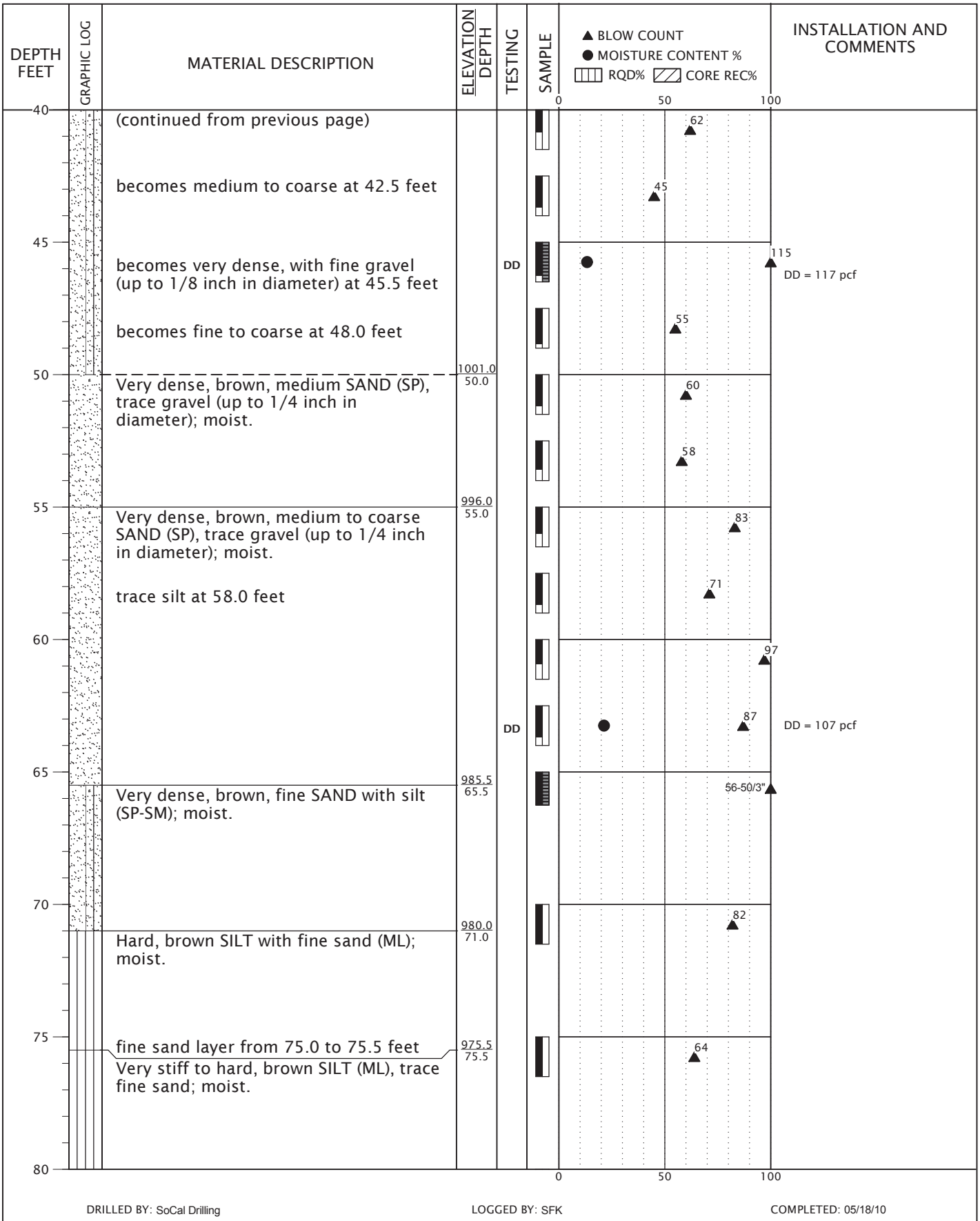
BORING B-2

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FIGURE A-3

BORING LOG TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/12/10:KT



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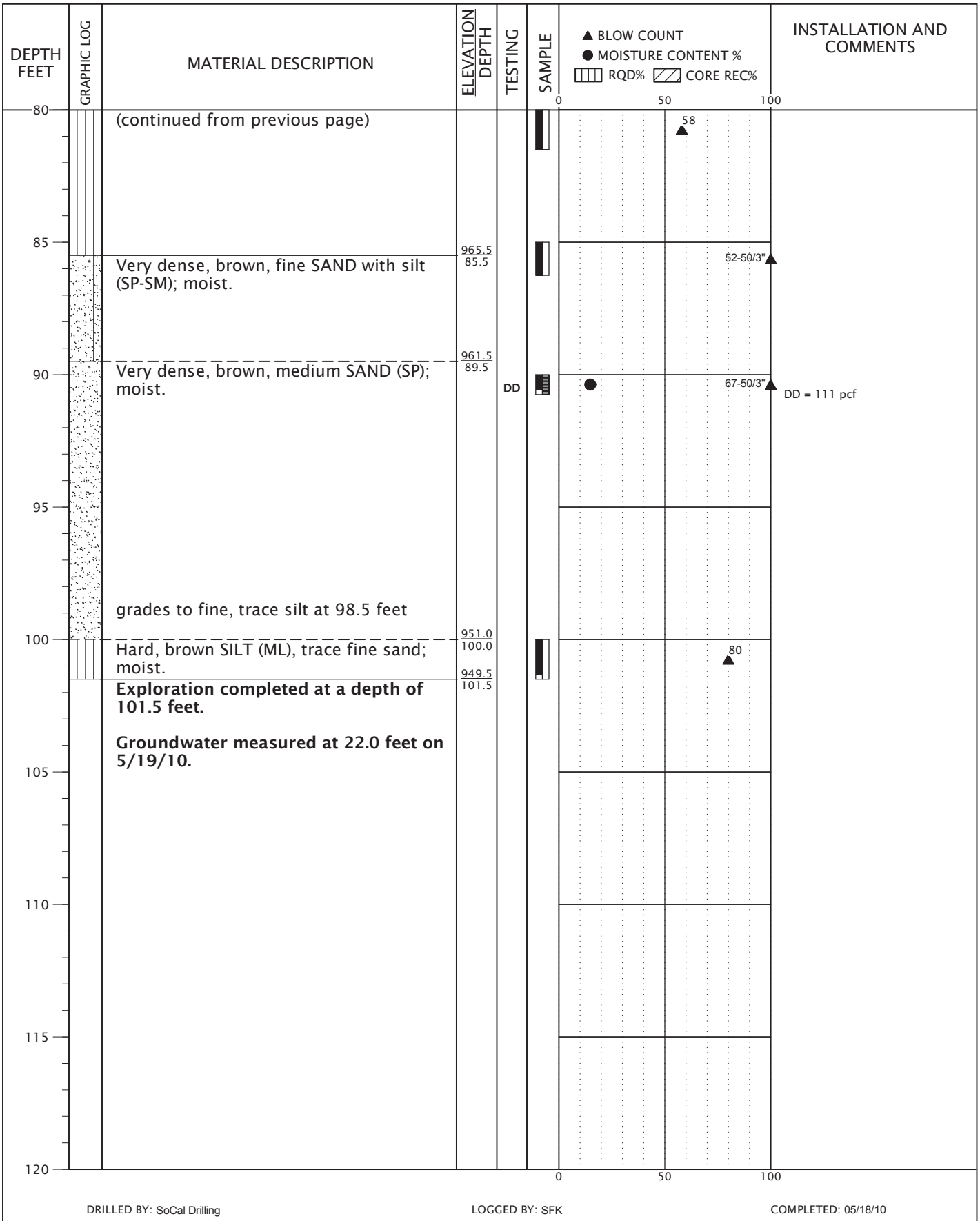
TURNERCONS-1-02

BORING B-2
(continued)

AUGUST 2010

PROPOSED TEMECULA HOSPITAL
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FIGURE A-3



DRILLED BY: SoCal Drilling | LOGGED BY: SFK | COMPLETED: 05/18/10

BORING METHOD: mud rotary (see report text) | BORING BIT DIAMETER: 4 7/8-inch

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TURNERCONS-1-02

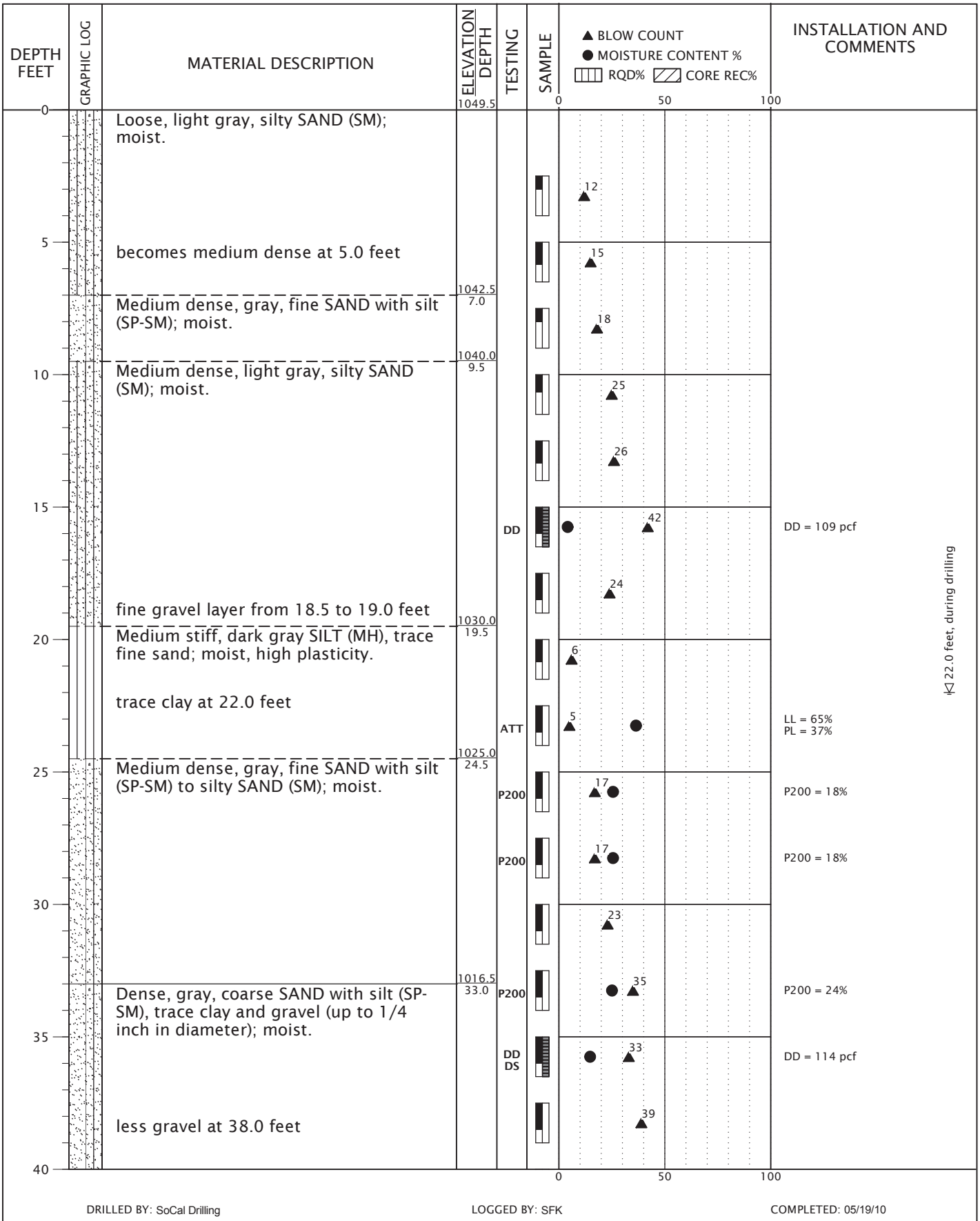
BORING B-2
(continued)

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PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-3

BORING LOG TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/12/10:KT



DRILLED BY: SoCal Drilling

LOGGED BY: SFK

COMPLETED: 05/19/10

BORING METHOD: mud rotary (see report text)

BORING BIT DIAMETER: 4 7/8-inch

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TURNERCONS-1-02

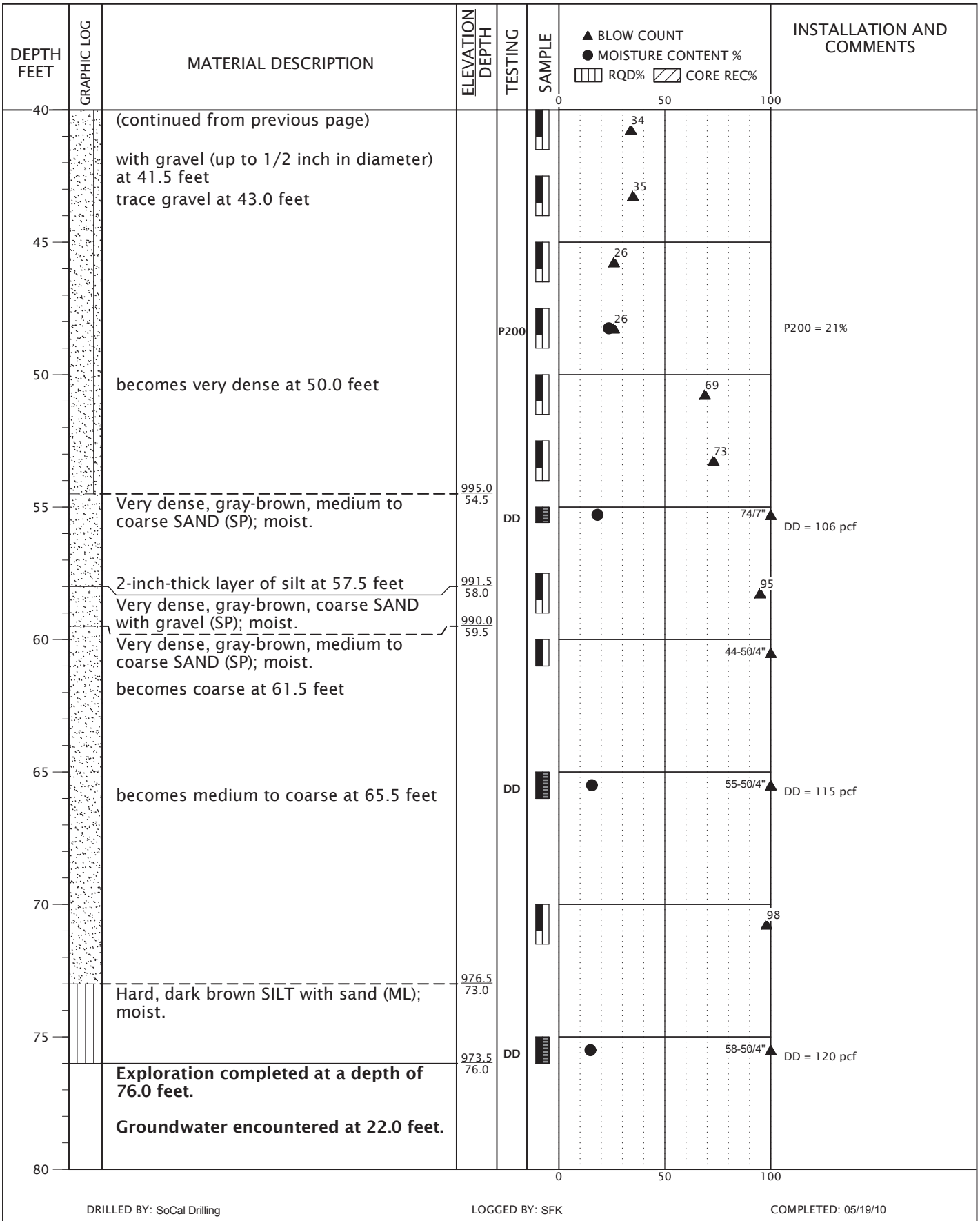
BORING B-3

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FIGURE A-4

BORING LOG TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/12/10:KT



DRILLED BY: SoCal Drilling

LOGGED BY: SFK

COMPLETED: 05/19/10

BORING METHOD: mud rotary (see report text)

BORING BIT DIAMETER: 4 7/8-inch

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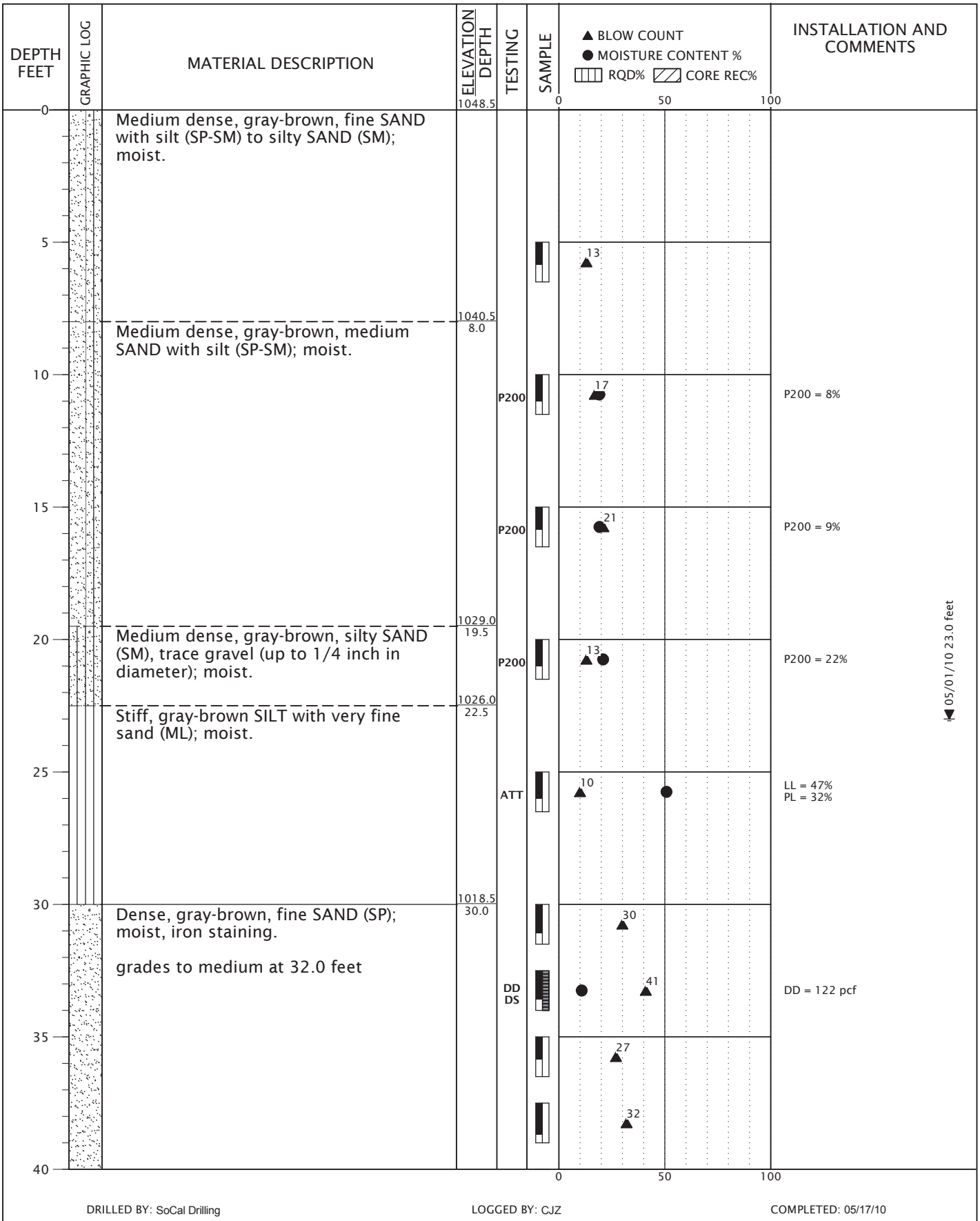
BORING B-3
(continued)

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FIGURE A-4

BORING LOG TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/12/10:KT



DRILLED BY: SoCal Drilling

LOGGED BY: CJZ

COMPLETED: 05/17/10

BORING METHOD: mud rotary (see report text)

BORING BIT DIAMETER: 4 7/8-inch

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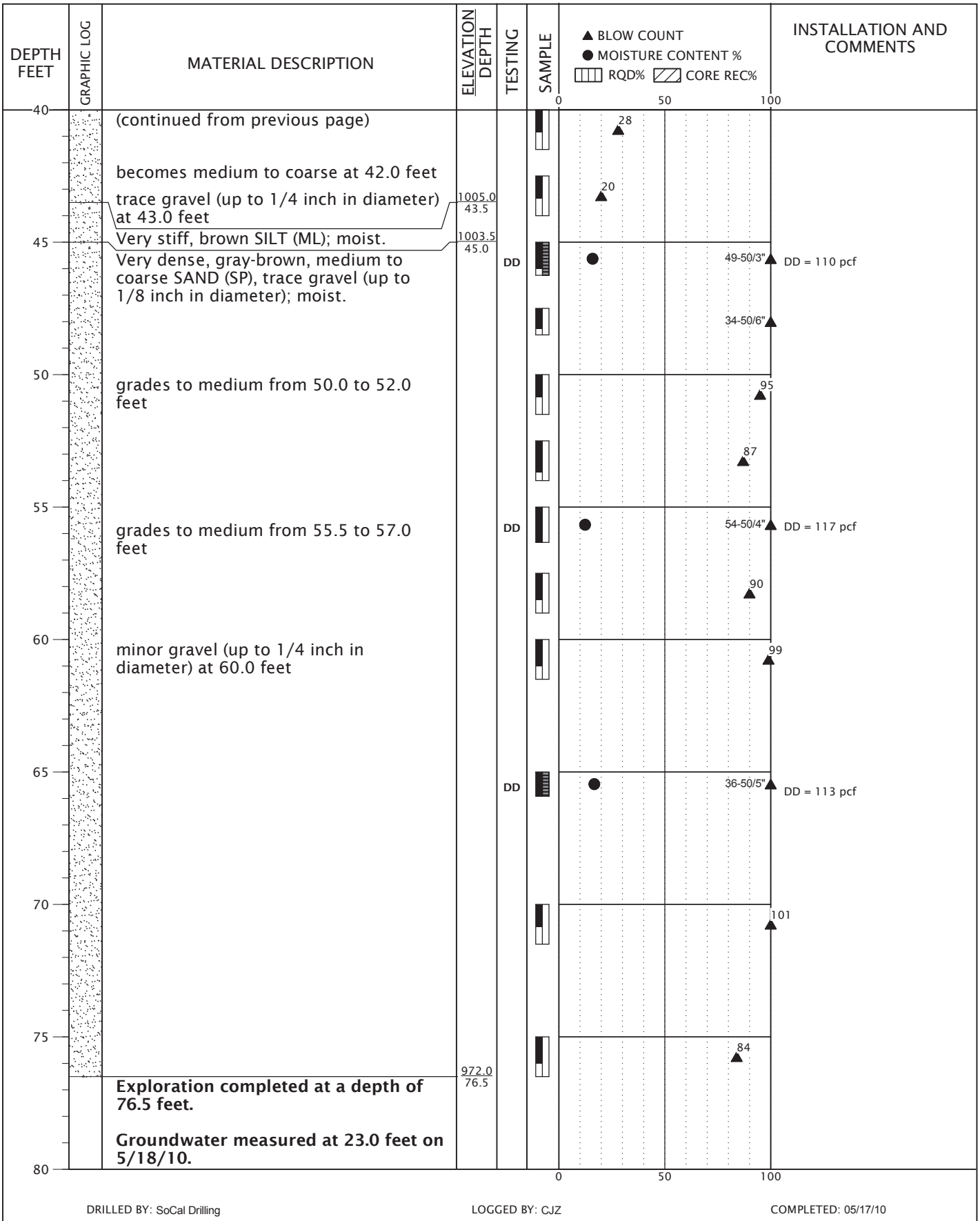
BORING B-4

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FIGURE A-5

BORING LOG TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/12/10:KT



DRILLED BY: SoCal Drilling

LOGGED BY: CJZ

COMPLETED: 05/17/10

BORING METHOD: mud rotary (see report text)

BORING BIT DIAMETER: 4 7/8-inch

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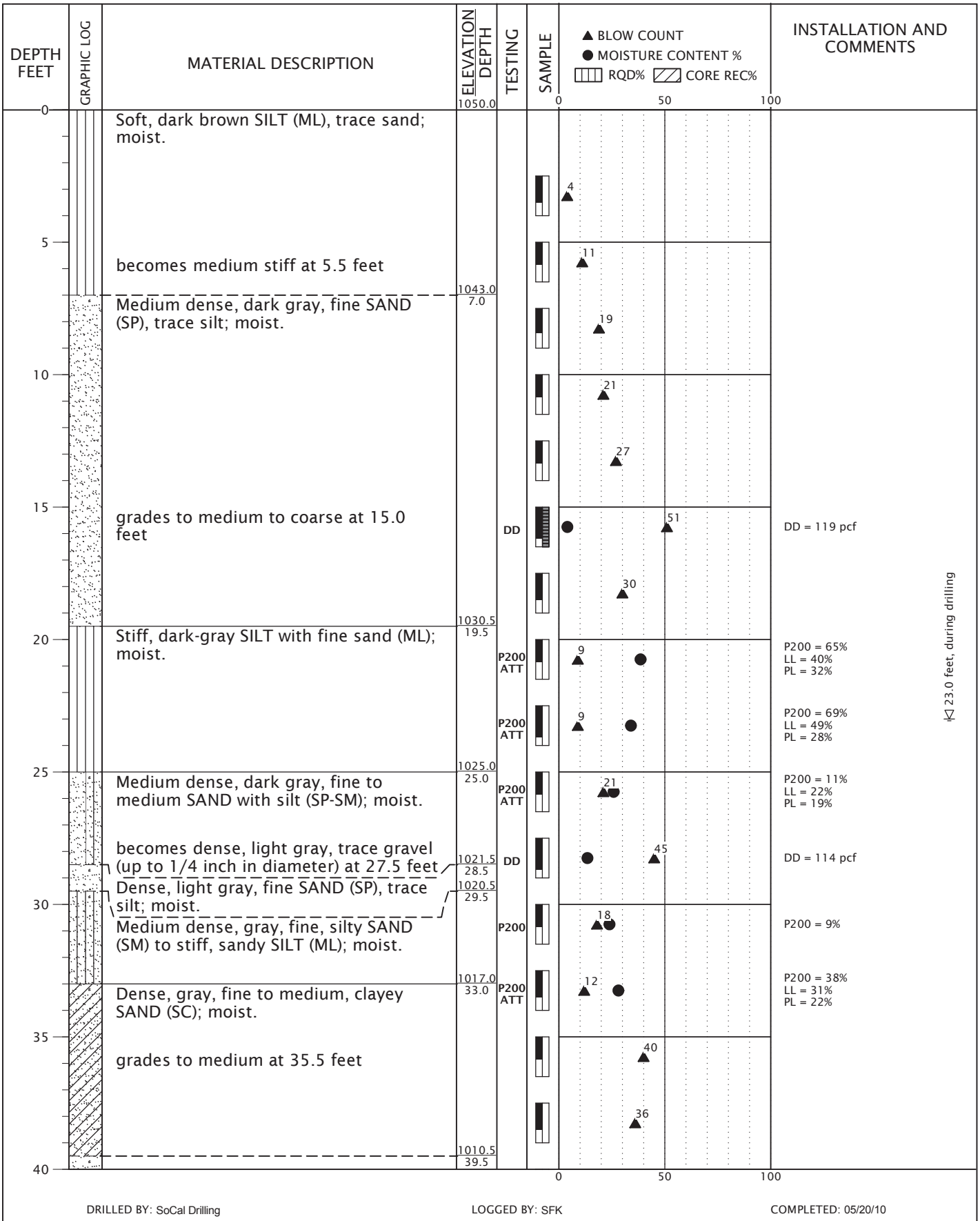
BORING B-4
(continued)

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FIGURE A-5

BORING LOG TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/12/10:KT



DRILLED BY: SoCal Drilling

LOGGED BY: SFK

COMPLETED: 05/20/10

BORING METHOD: mud rotary (see report text)

BORING BIT DIAMETER: 4 7/8-inch

BORING LOG TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/12/10:KT

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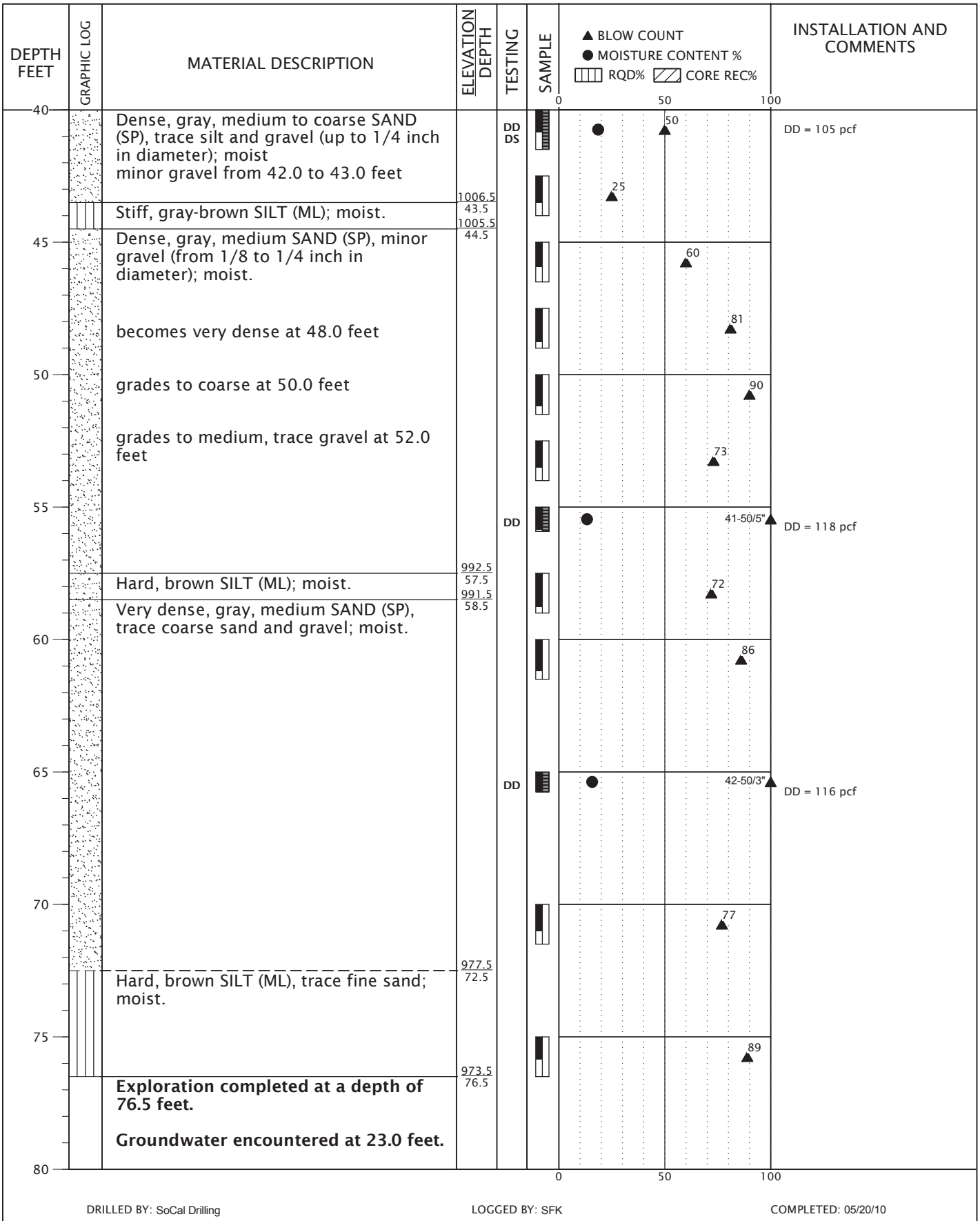
TURNERCONS-1-02

BORING B-5

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FIGURE A-6



DRILLED BY: SoCal Drilling

LOGGED BY: SFK

COMPLETED: 05/20/10

BORING METHOD: mud rotary (see report text)

BORING BIT DIAMETER: 4 7/8-inch

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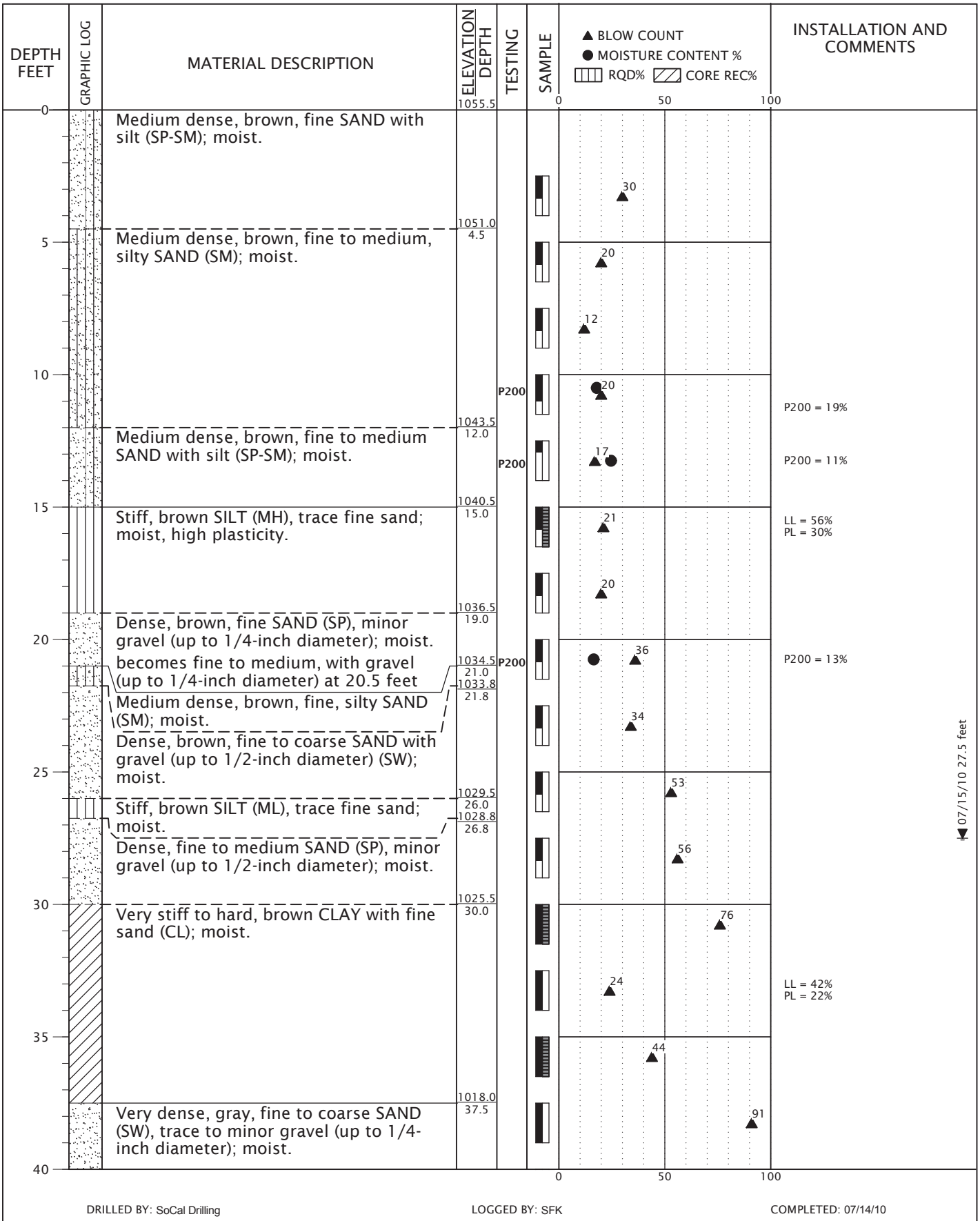
BORING B-5
(continued)

AUGUST 2010

PROPOSED TEMECULA HOSPITAL
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FIGURE A-6

BORING LOG TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/12/10:KT



DRILLED BY: SoCal Drilling

LOGGED BY: SFK

COMPLETED: 07/14/10

BORING METHOD: mud rotary (see report text)

BORING BIT DIAMETER: 4 7/8-inch

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TURNERCONS-1-02

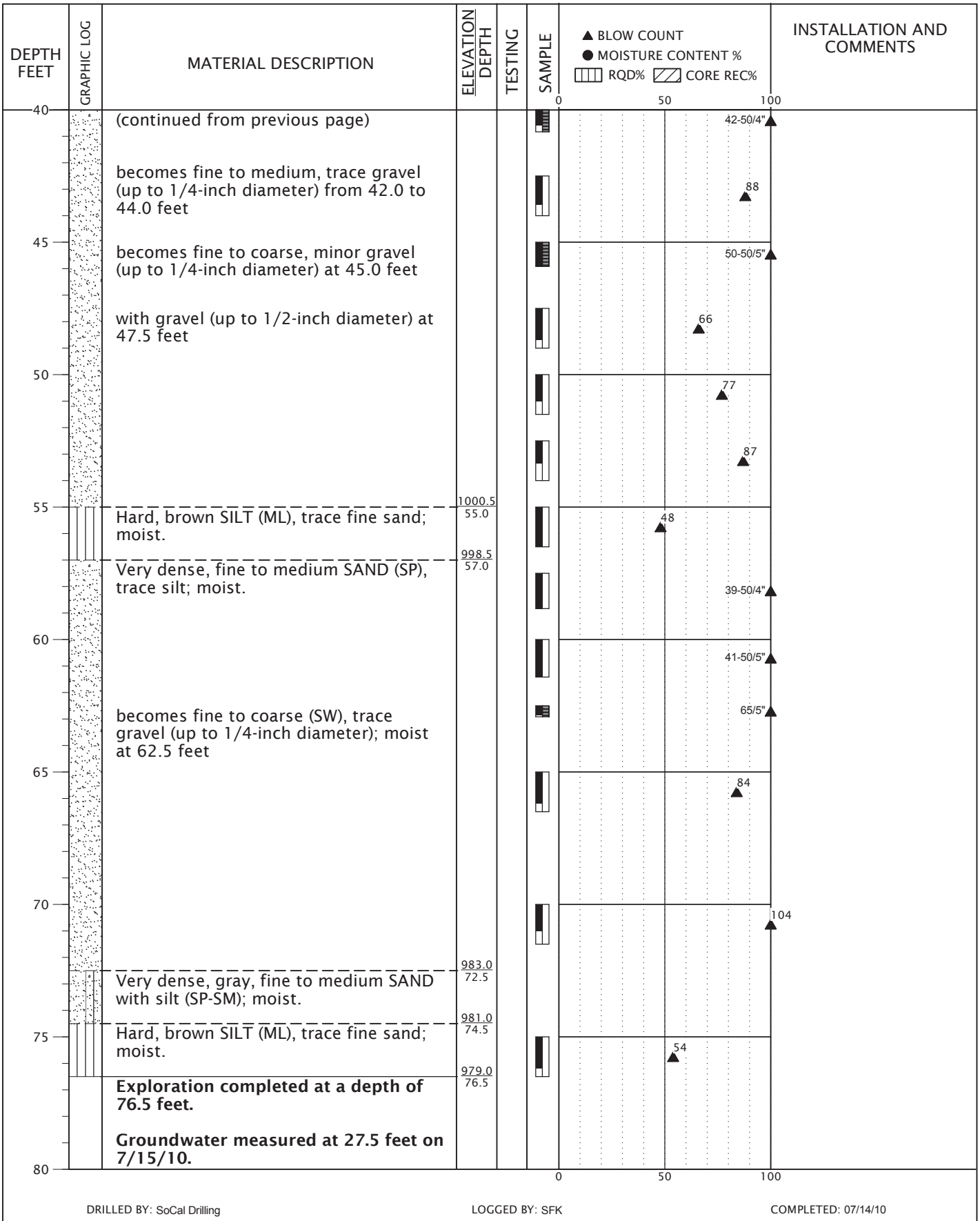
BORING B-6

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FIGURE A-7

BORING LOG TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/12/10:KT



DRILLED BY: SoCal Drilling | LOGGED BY: SFK | COMPLETED: 07/14/10

BORING METHOD: mud rotary (see report text) | BORING BIT DIAMETER: 4 7/8-inch

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TURNERCONS-1-02

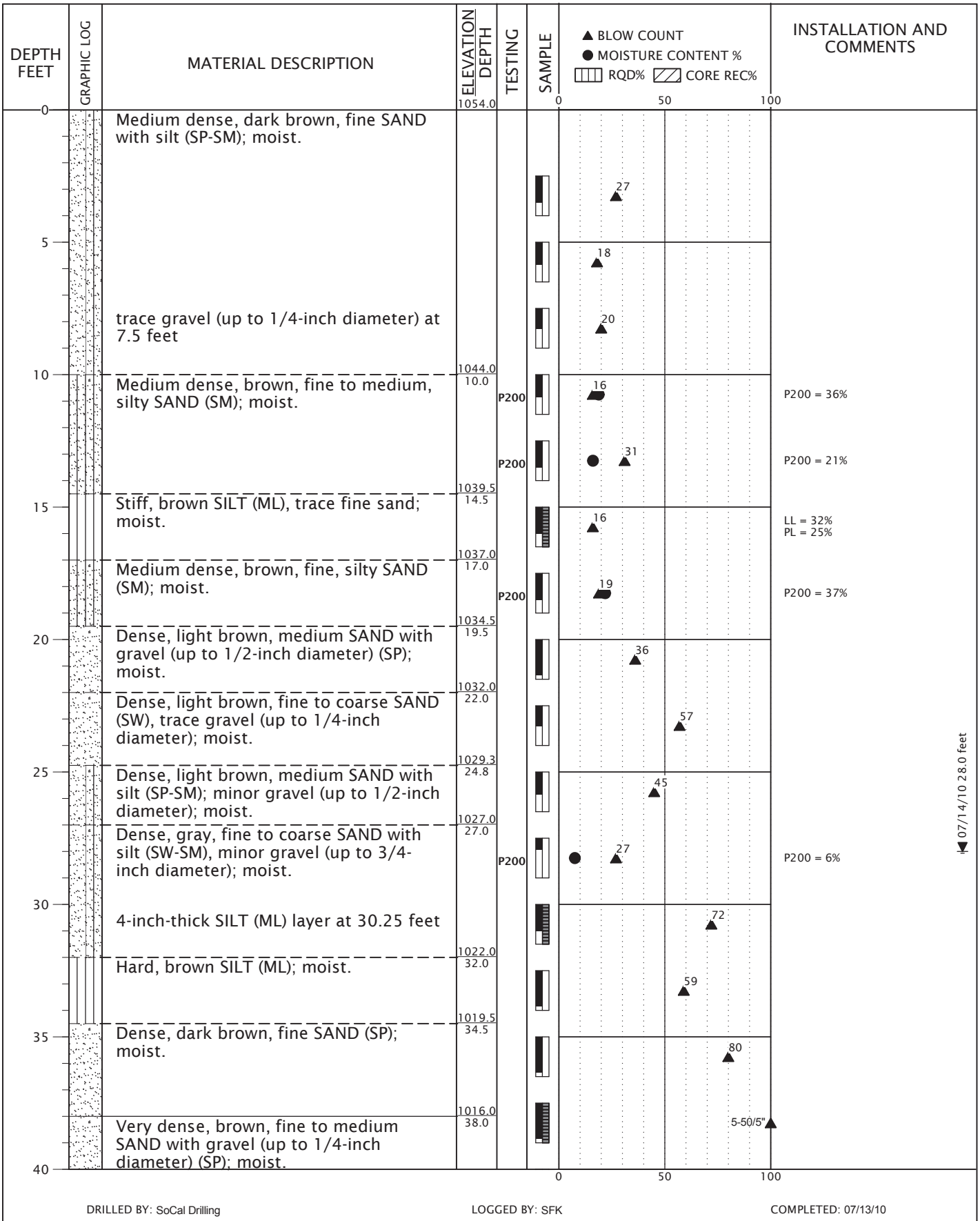
BORING B-6
(continued)

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FIGURE A-7

BORING LOG TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/12/10:KT



BORING LOG TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/12/10:KT

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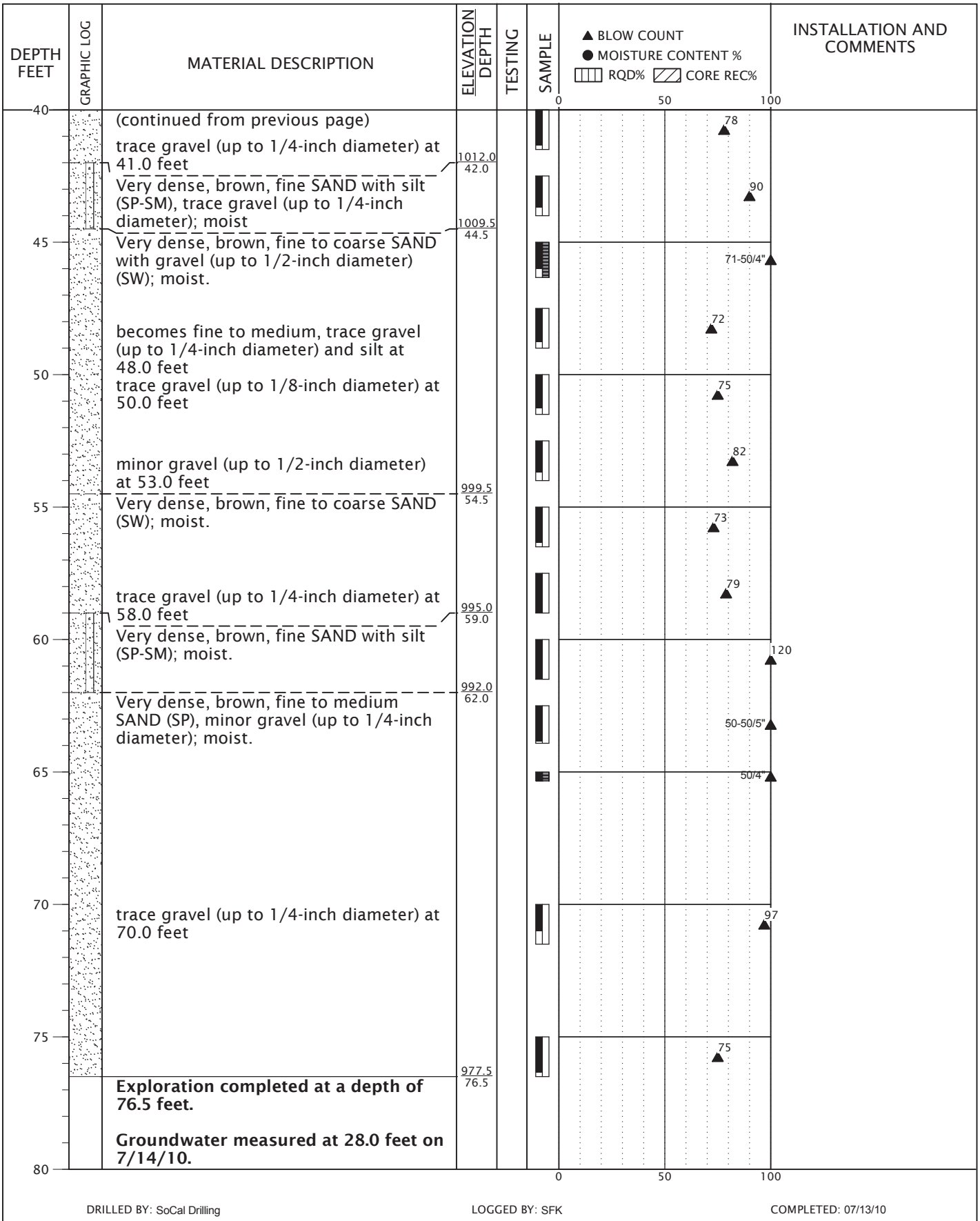
TURNERCONS-1-02

BORING B-7

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TEMECULA, CA

FIGURE A-8



DRILLED BY: SoCal Drilling | LOGGED BY: SFK | COMPLETED: 07/13/10

BORING METHOD: mud rotary (see report text) | BORING BIT DIAMETER: 4 7/8-inch

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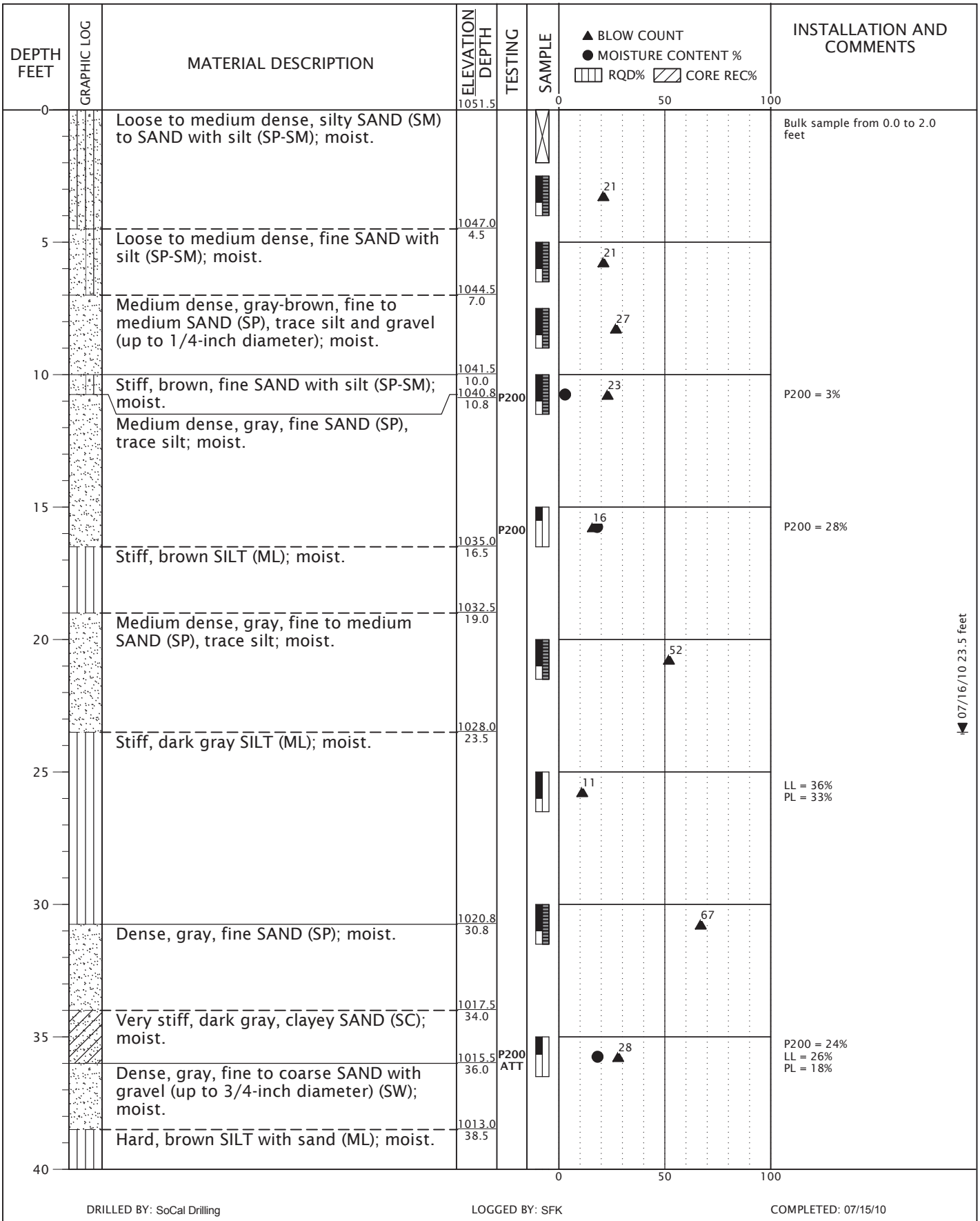
BORING B-7
(continued)

AUGUST 2010

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-8

BORING LOG TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/12/10:KT



BORING LOG TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/12/10:KT

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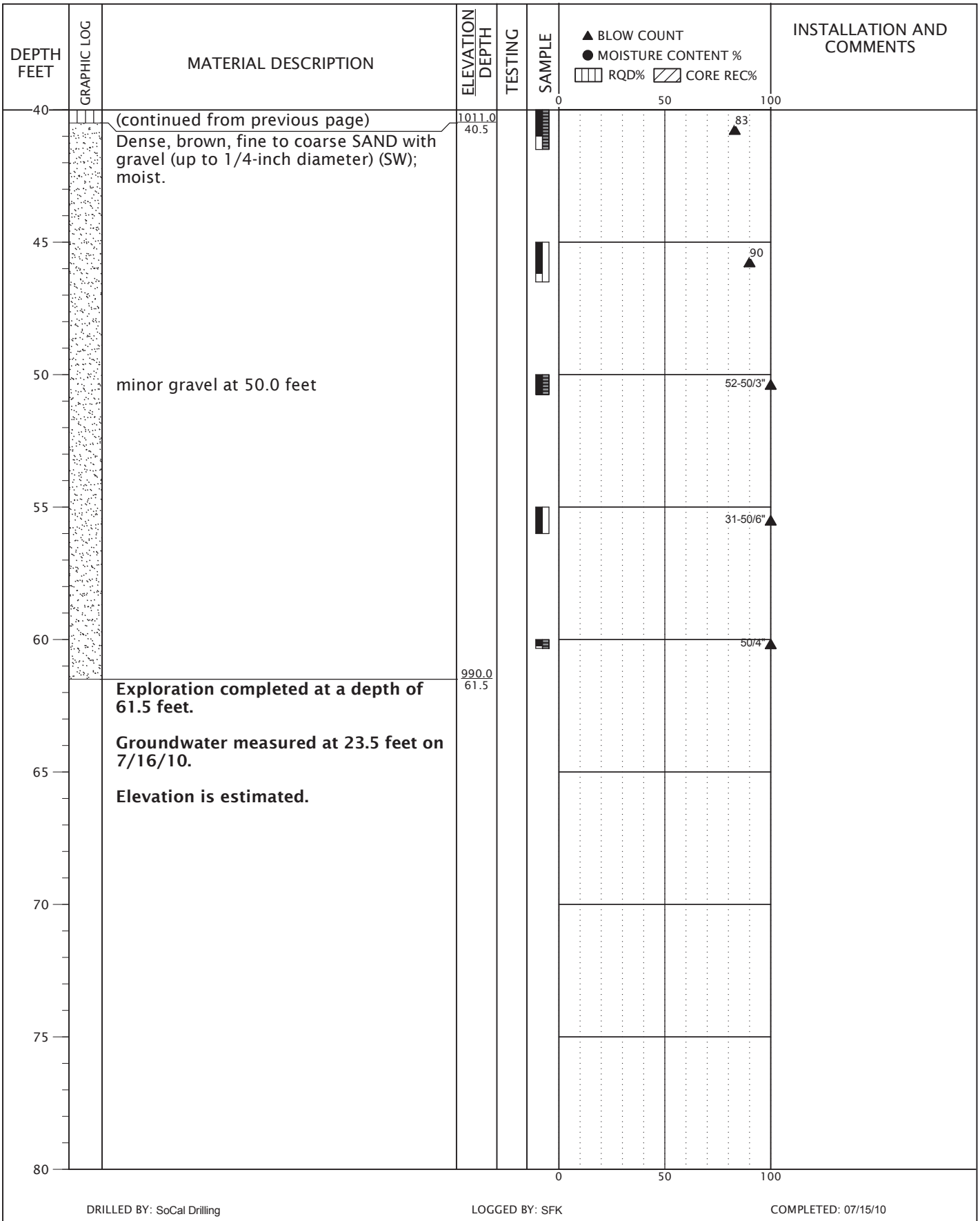
TURNERCONS-1-02

BORING B-8

AUGUST 2010

PROPOSED TEMECULA HOSPITAL
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FIGURE A-9



BORING LOG TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/12/10:KT

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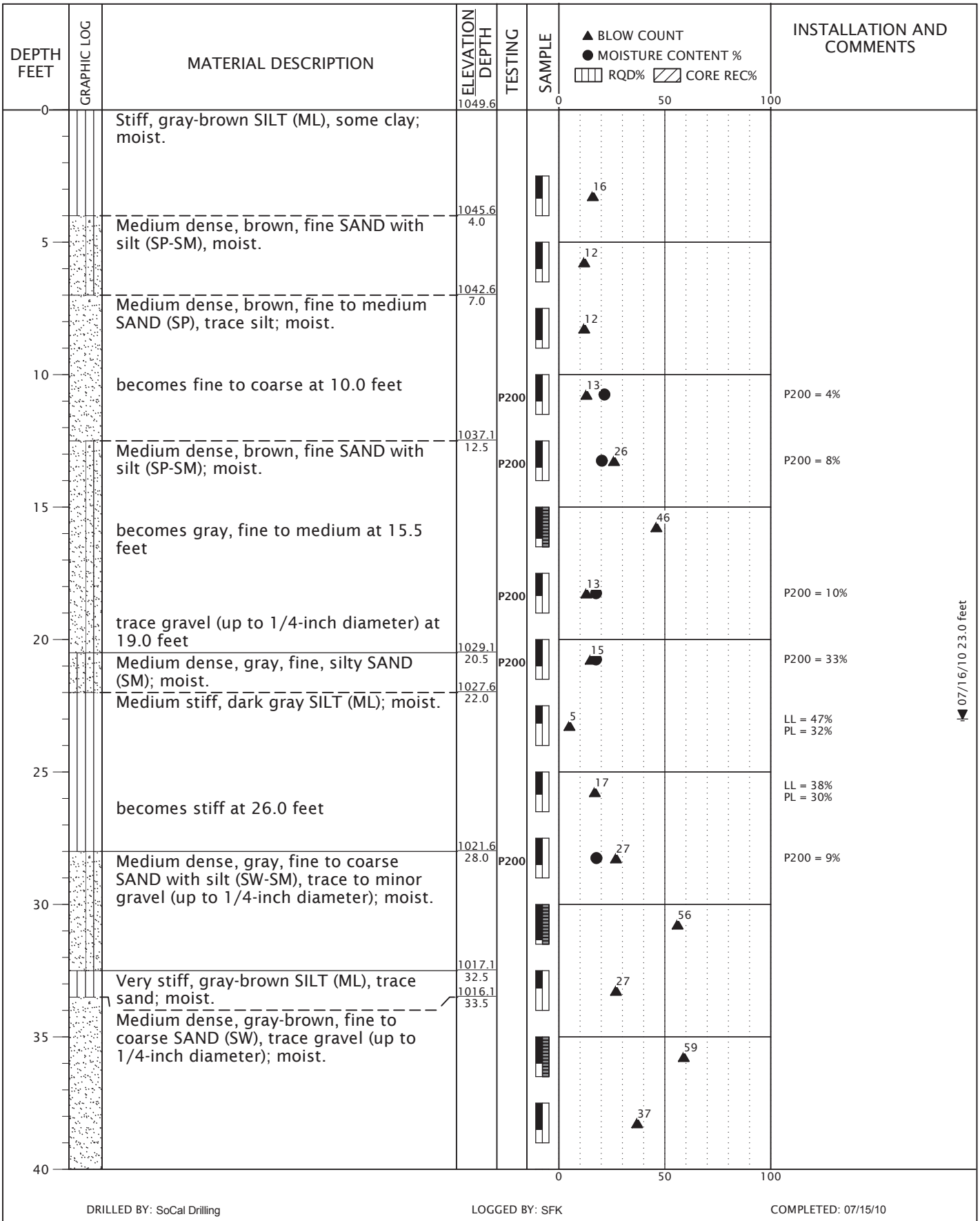
TURNERCONS-1-02

BORING B-8
(continued)

AUGUST 2010

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-9



BORING LOG TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/12/10:KT

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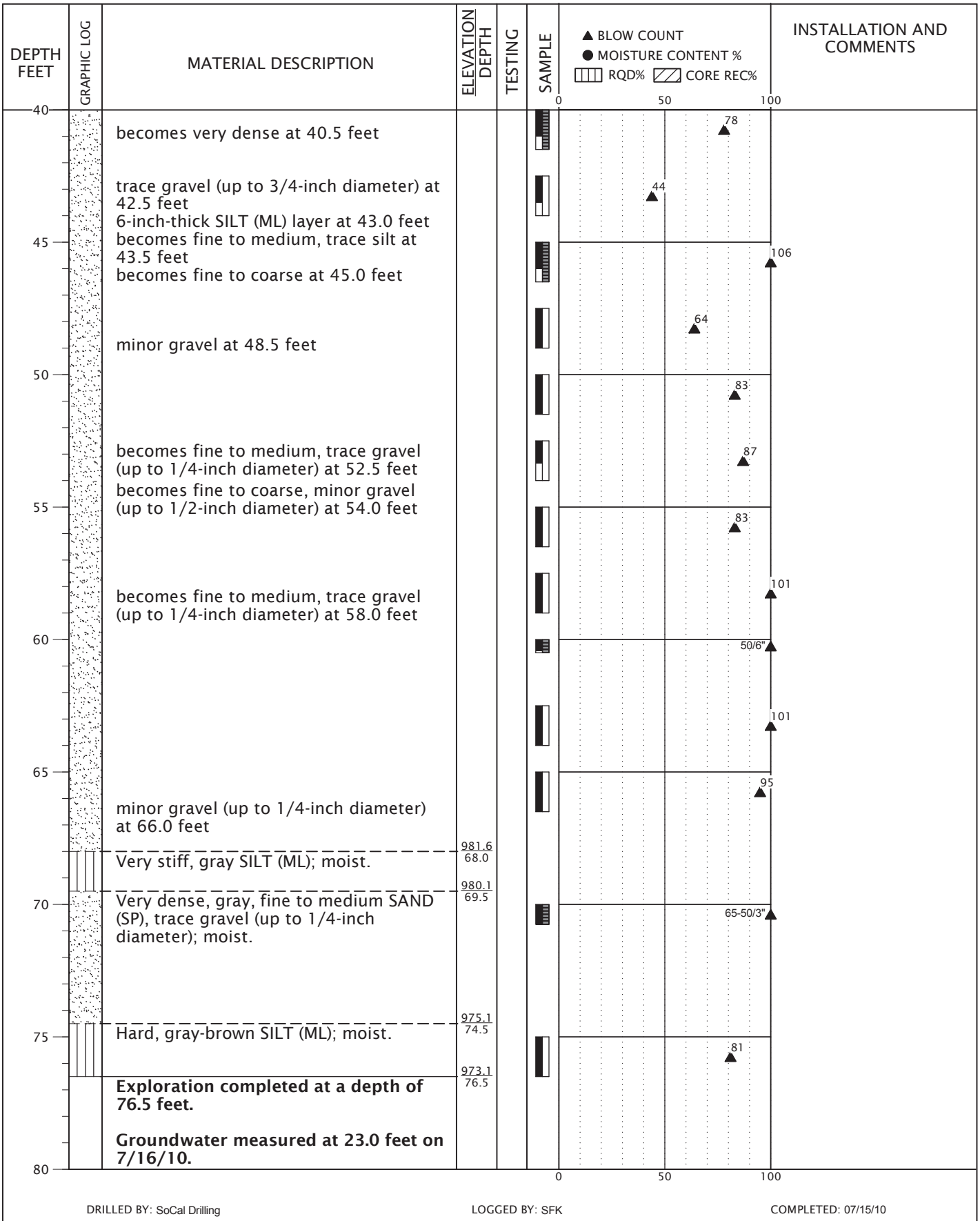
TURNERCONS-1-02

BORING B-9

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PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-10



DRILLED BY: SoCal Drilling

LOGGED BY: SFK

COMPLETED: 07/15/10

BORING METHOD: mud rotary (see report text)

BORING BIT DIAMETER: 4 7/8-inch

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TURNERCONS-1-02

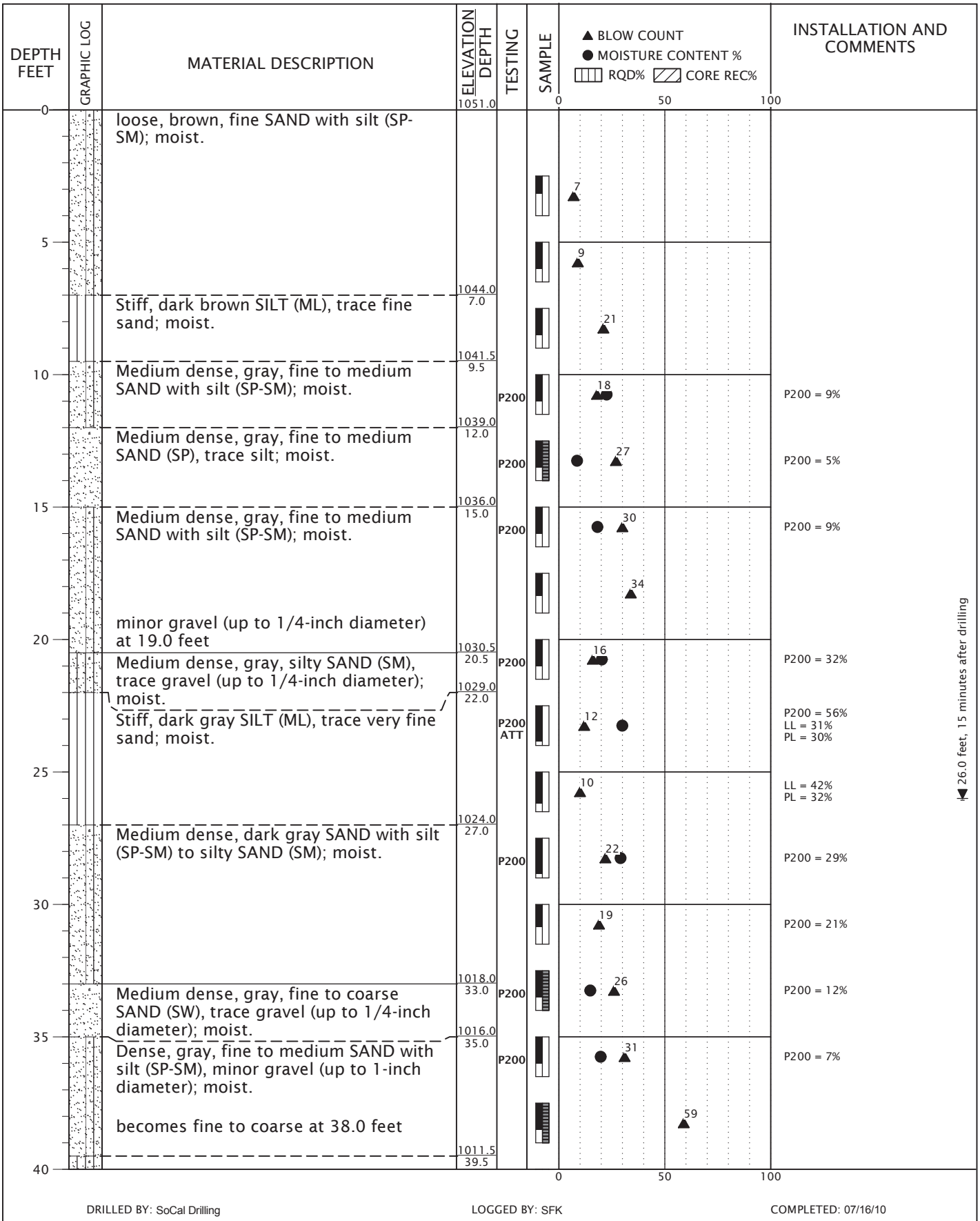
BORING B-9
(continued)

AUGUST 2010

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-10

BORING LOG TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/12/10:KT



DRILLED BY: SoCal Drilling

LOGGED BY: SFK

COMPLETED: 07/16/10

BORING METHOD: mud rotary (see report text)

BORING BIT DIAMETER: 4 7/8-inch

BORING LOG TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/12/10:KT

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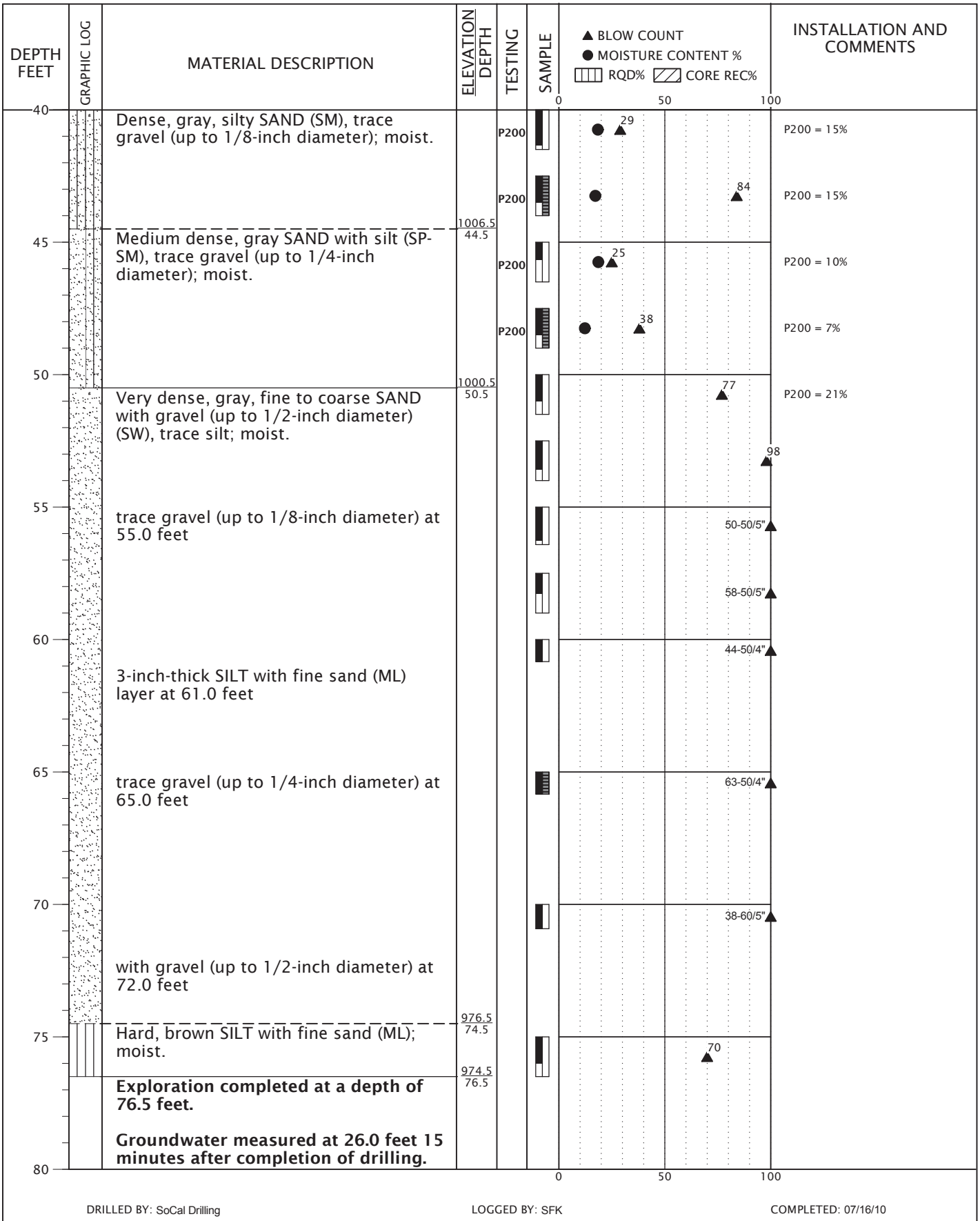
TURNERCONS-1-02

BORING B-10

AUGUST 2010

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-11



DRILLED BY: SoCal Drilling

LOGGED BY: SFK

COMPLETED: 07/16/10

BORING METHOD: mud rotary (see report text)

BORING BIT DIAMETER: 4 7/8-inch

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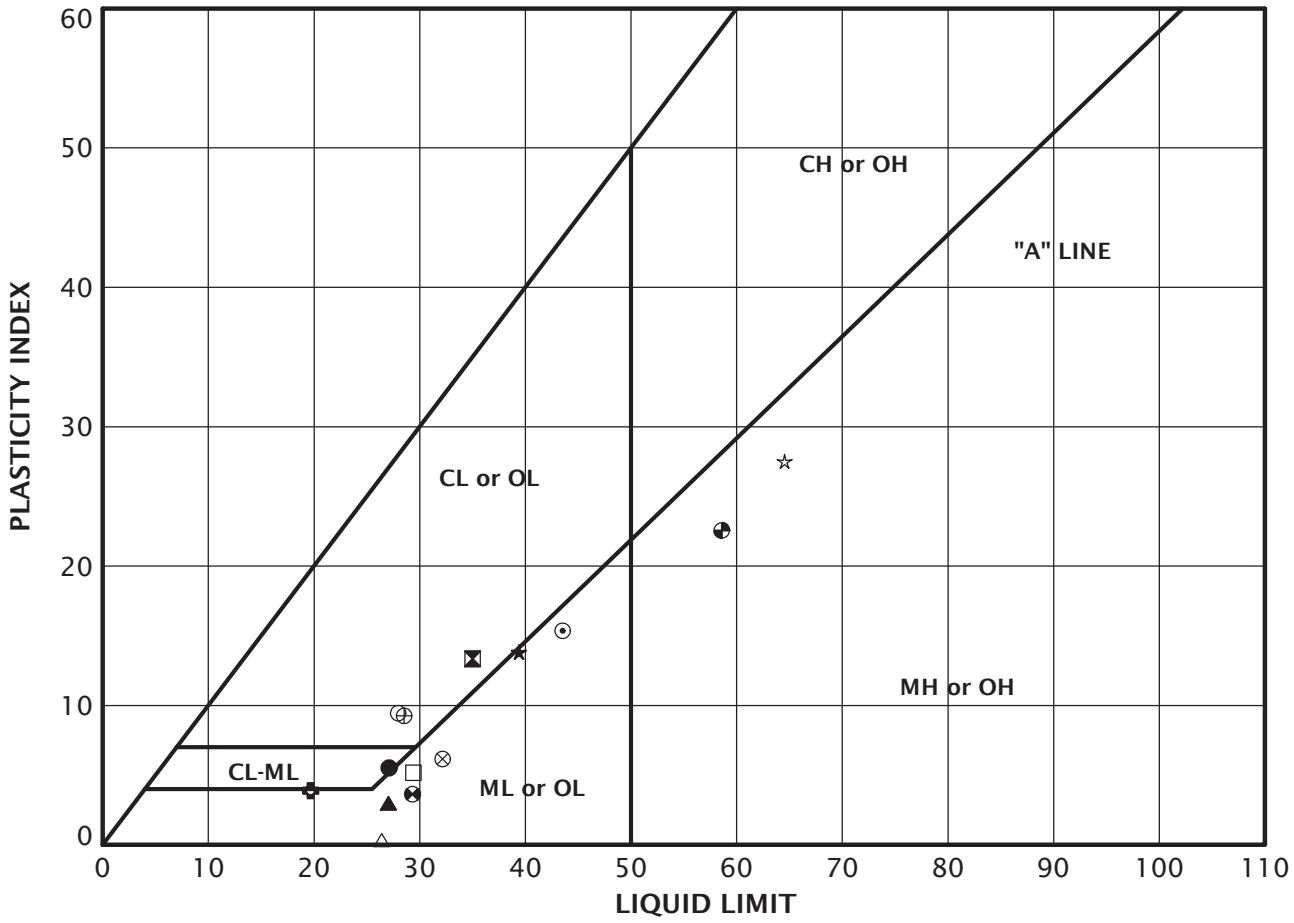
BORING B-10
(continued)

AUGUST 2010

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-11

BORING LOG TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/12/10:KT



KEY	EXPLORATION NUMBER	SAMPLE DEPTH (FEET)	MOISTURE CONTENT (PERCENT)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
●	B-1	15.0	22	27	22	5
⊠	B-1	17.5	26	35	22	13
▲	B-1	20.0	29	27	24	3
★	B-1	22.5	30	39	26	13
⊙	B-1	37.5	37	44	28	16
✿	B-1	42.5	21	20	16	4
○	B-1	57.5	26	28	19	9
△	B-1A	15.0	23	26	26	NP
⊗	B-1A	20.0	29	32	26	6
⊕	B-1A	30.0	25	29	19	10
□	B-2	12.5	24	29	24	5
⊗	B-2	17.5	30	29	26	3
◒	B-2	25.0	57	59	36	23
☆	B-3	22.5	36	65	37	28

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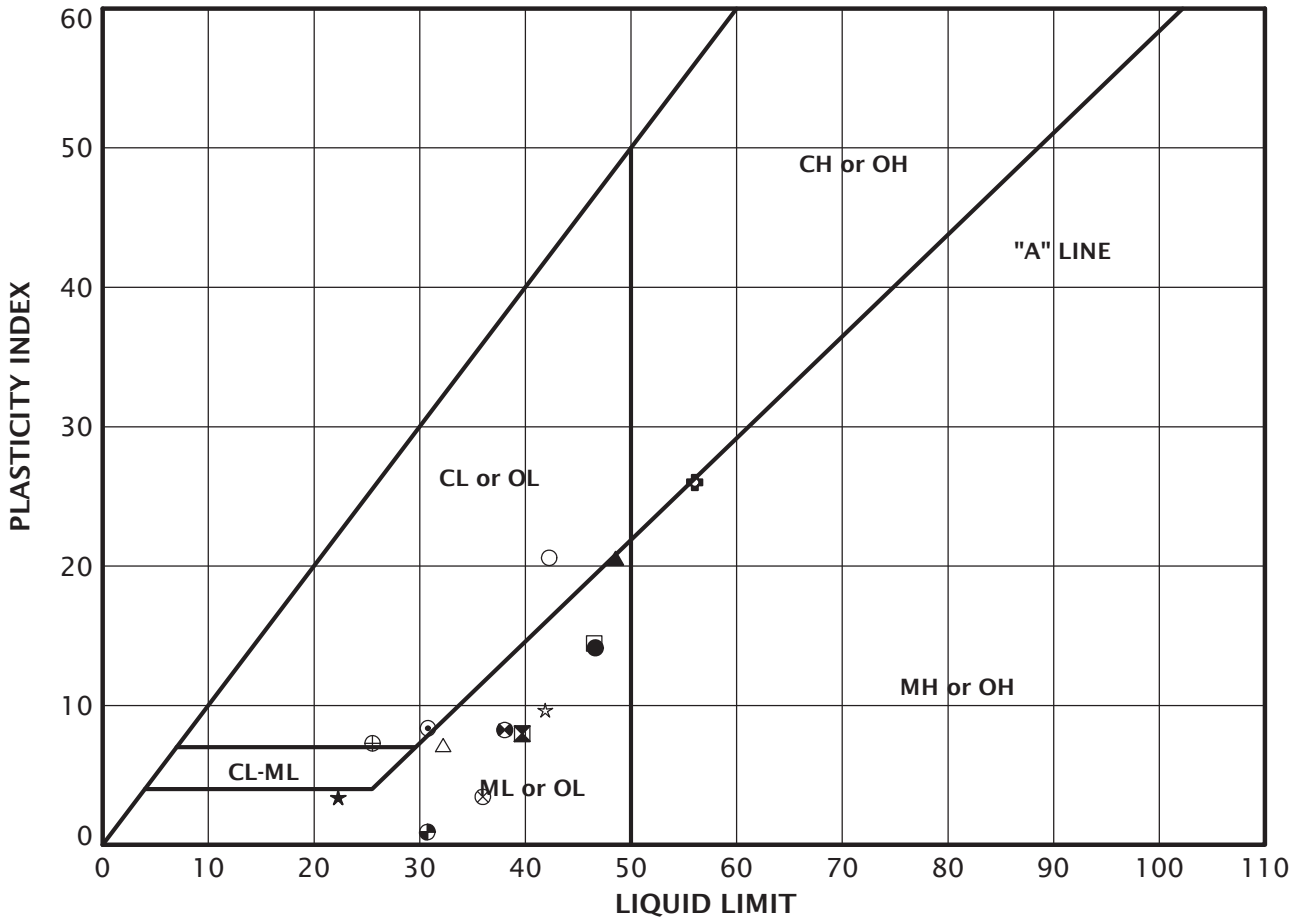
ATTERBERG LIMITS TEST RESULTS

AUGUST 2010

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-12

ATTERBERG_LIMITS 14 TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/11/10:KT



KEY	EXPLORATION NUMBER	SAMPLE DEPTH (FEET)	MOISTURE CONTENT (PERCENT)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
●	B-4	25.0	51	47	32	15
⊠	B-5	20.0	43	40	32	8
▲	B-5	22.5	42	49	28	21
★	B-5	25.0	26	22	19	3
⊙	B-5	32.5	28	31	22	9
✿	B-6	15.0	32	56	30	26
○	B-6	32.5	24	42	22	20
△	B-7	15.0	22	32	25	7
⊗	B-8	25.0	47	36	33	3
⊕	B-8	35.0	25	26	18	8
□	B-9	22.5	38	47	32	15
◍	B-9	25.0	37	38	30	8
◓	B-10	22.5	37	31	30	1
☆	B-10	25.0	41	42	32	10

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TURNERCONS-1-02

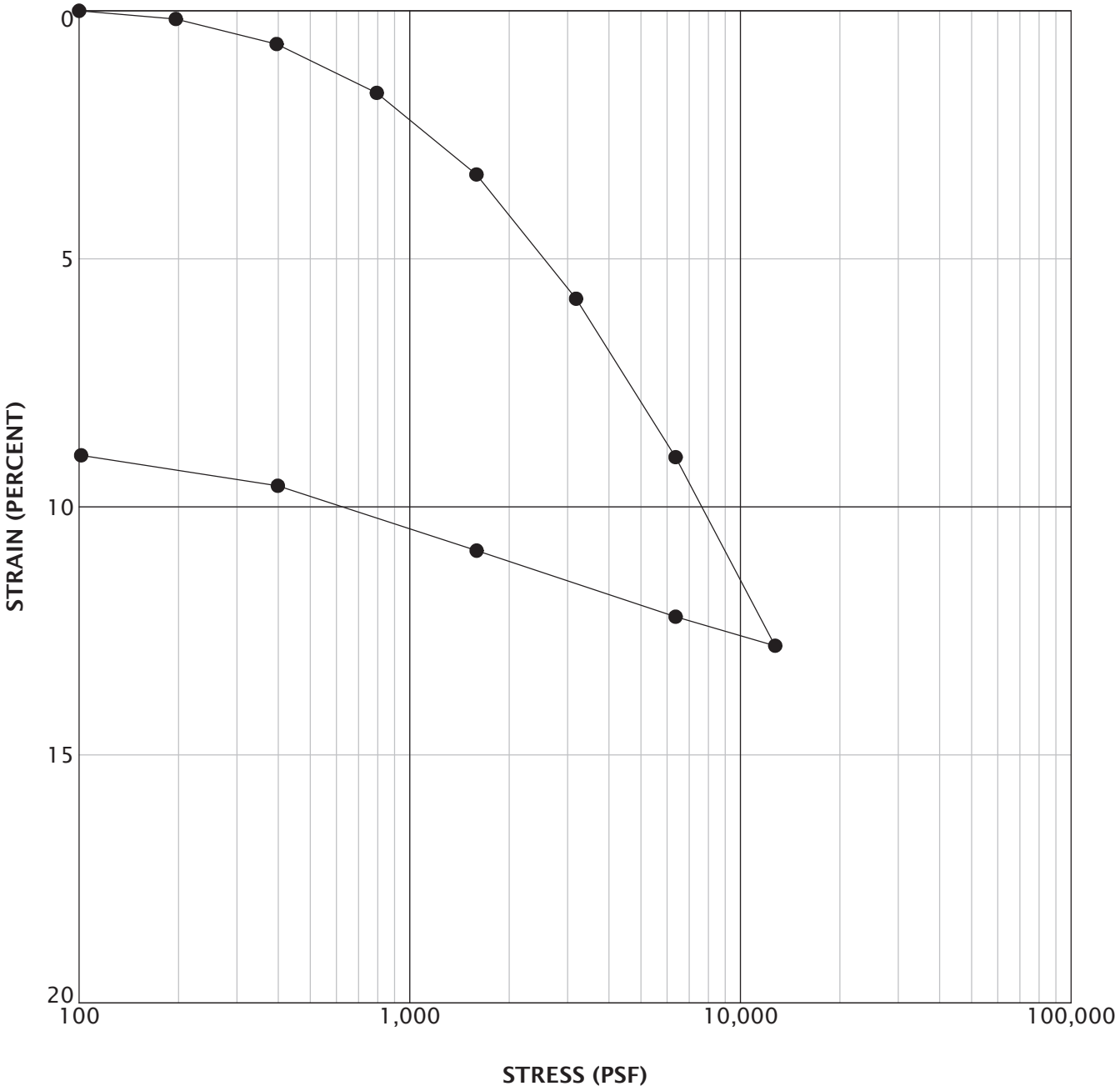
ATTERBERG LIMITS TEST RESULTS
(continued)

AUGUST 2010

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-12

ATTERBERG_LIMITS 14 TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/11/10:KT

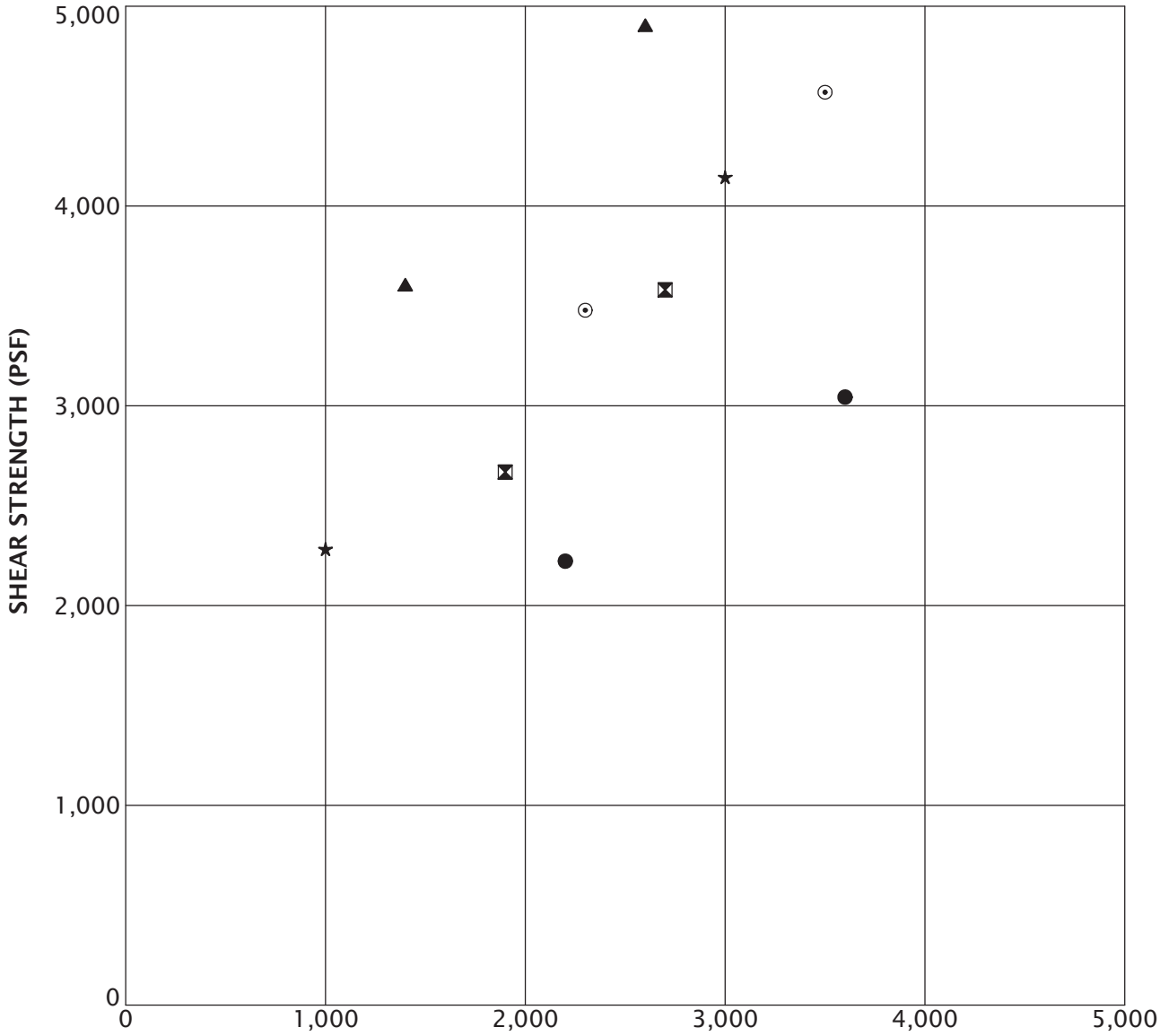


KEY	EXPLORATION NUMBER	SAMPLE DEPTH (FEET)	MOISTURE CONTENT (PERCENT)	DRY DENSITY (PCF)
●	B-1	35.0	30	86

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TURNERCONS-1-02	**CONSOLIDATION TEST RESULTS**	
AUGUST 2010	PROPOSED TEMECULA HOSPITAL TEMECULA, CA	**FIGURE A-13**

CONSOL_STRAIN_100K TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/11/10:KT



KEY	EXPLORATION NUMBER	SAMPLE DEPTH (FEET)	MOISTURE CONTENT (PERCENT)	DRY DENSITY (PCF)	SOAKED
●	B-1	35.0	30	84	YES
⊠	B-2	27.5	23	98	YES
▲	B-3	35.0	15	114	YES
★	B-4	32.5	12	112	YES
⊙	B-5	40.0	19	104	YES

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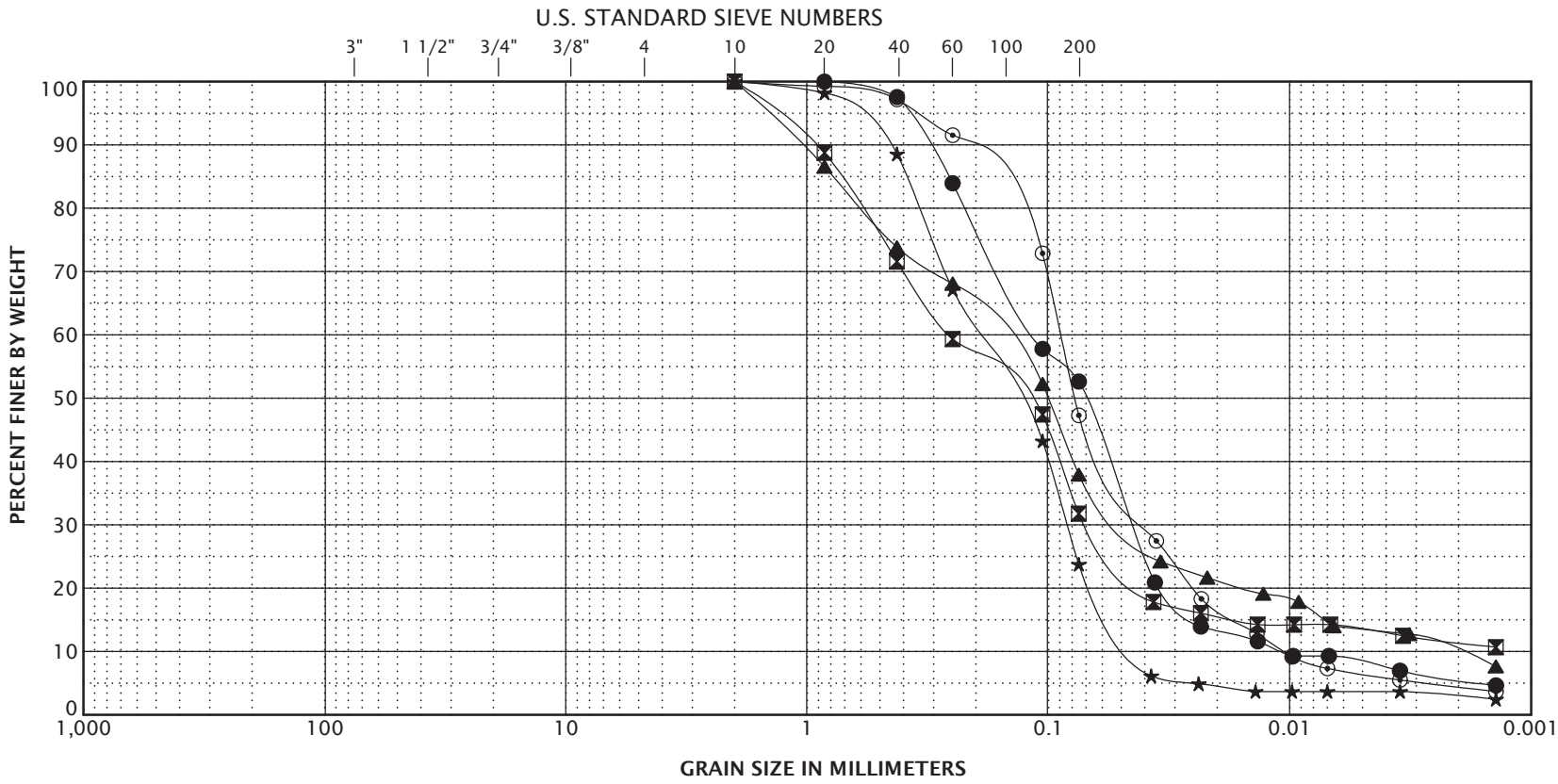
DIRECT SHEAR TEST RESULTS

AUGUST 2010

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-14

DIRECT_SHEAR_FAIL_ENV_NO BOX TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/11/10:KT



BOULDERS	COBBLES	GRAVEL		SAND			FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

KEY	EXPLORATION NUMBER	SAMPLE DEPTH (FEET)	MOISTURE CONTENT (PERCENT)	D60	D50	D30	D10	D5	GRAVEL (PERCENT)	SAND (PERCENT)	SILT (PERCENT)	CLAY (PERCENT)
●	B-1	20.0	22	0.11	0.07	0.04	0.01	0.00	0	47	44	8
⊠	B-1	42.5	25	0.26	0.13	0.07			0	68	18	13
▲	B-1	55.0	27	0.16	0.10	0.05	0.00		0	62	24	14
★	B-1A	15.0	23	0.19	0.13	0.08	0.04	0.02	0	76	20	4
⊙	B-1A	20.0	28	0.09	0.08	0.04	0.01	0.00			41	6

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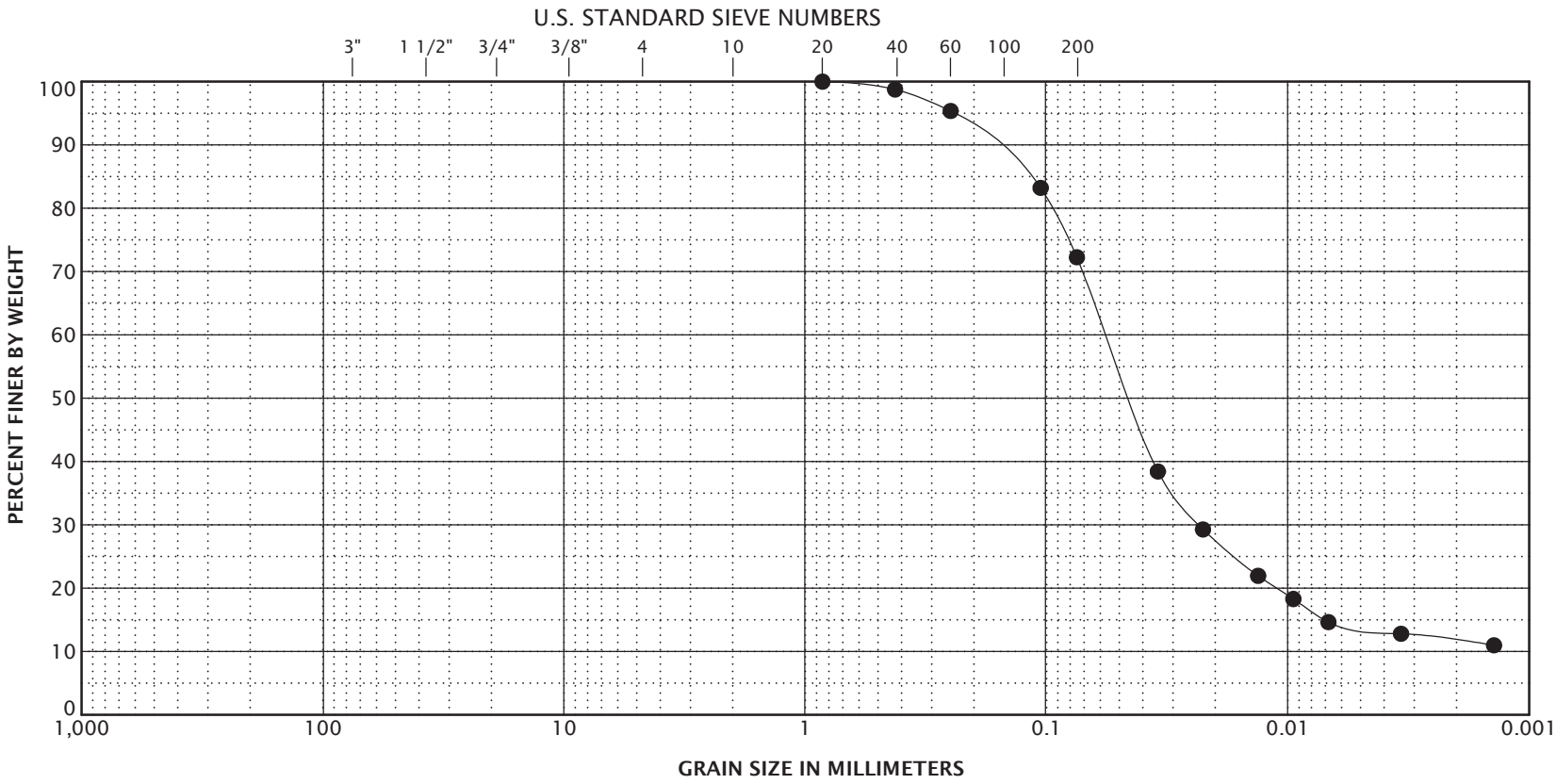
TURNERCONS-1-02

AUGUST 2010

GRAIN-SIZE TEST RESULTS

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-15



BOULDERS	COBBLES	GRAVEL		SAND			FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

KEY	EXPLORATION NUMBER	SAMPLE DEPTH (FEET)	MOISTURE CONTENT (PERCENT)	D60	D50	D30	D10	D5	GRAVEL (PERCENT)	SAND (PERCENT)	SILT (PERCENT)	CLAY (PERCENT)
●	B-2	17.5	135	0.06	0.05	0.02			0	28	58	14

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TURNERCONS-1-02

GRAIN-SIZE TEST RESULTS
(continued)

AUGUST 2010

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-15

SAMPLE INFORMATION			MOISTURE CONTENT (PERCENT)	DRY DENSITY (PCF)	SIEVE			ATTERBERG LIMITS		
EXPLORATION NUMBER	SAMPLE DEPTH (FEET)	ELEVATION (FEET)			GRAVEL (PERCENT)	SAND (PERCENT)	P200 (PERCENT)	LIQUID LIMIT (PERCENT)	PLASTIC LIMIT (PERCENT)	PLASTICITY INDEX (PERCENT)
B-1	10.0	1044.5	22				50			
B-1	12.5	1042.0	26				41			
B-1	15.0	1039.5	22					27	22	5
B-1	17.5	1037.0	25	94				35	22	13
B-1	20.0	1034.5	29		0	47	53	27	24	3
B-1	22.5	1032.0	30					39	26	13
B-1	25.0	1029.5	32				43			
B-1	35.0	1019.5	30	86						
B-1	37.5	1017.0	37					44	28	16
B-1	42.5	1012.0	21		0	68	32	20	16	4
B-1	45.0	1009.5	25				23			
B-1	47.5	1007.0	19				10			
B-1	50.0	1004.5	19				8			
B-1	52.5	1002.0	18				9			
B-1	55.0	999.5	27		0	62	38			
B-1	57.5	997.0	26				27	28	19	9
B-1	65.0	989.5	14	117						
B-1	75.0	979.5	12	120						
B-1A	15.0	1036.0	23		0	76	24	26	26	NP
B-1A	20.0	1031.0	29				47	32	26	6
B-1A	22.5	1028.5	27				71			
B-1A	25.0	1026.0	40							
B-1A	30.0	1021.0	25				11	29	19	10
B-1A	37.5	1013.5	24				14			
B-2	10.0	1041.0	24				50			
B-2	12.5	1038.5	24					29	24	5
B-2	15.0	1036.0	15	107						

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SUMMARY OF LABORATORY DATA

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-16

LAB SUMMARY TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/11/10:KT

SAMPLE INFORMATION			MOISTURE CONTENT (PERCENT)	DRY DENSITY (PCF)	SIEVE			ATTERBERG LIMITS		
EXPLORATION NUMBER	SAMPLE DEPTH (FEET)	ELEVATION (FEET)			GRAVEL (PERCENT)	SAND (PERCENT)	P200 (PERCENT)	LIQUID LIMIT (PERCENT)	PLASTIC LIMIT (PERCENT)	PLASTICITY INDEX (PERCENT)
B-2	17.5	1033.5	30		0	28	72	29	26	3
B-2	20.0	1031.0	25				48			
B-2	25.0	1026.0	57					59	36	23
B-2	27.5	1023.5	22	100						
B-2	35.0	1016.0	25				11			
B-2	45.0	1006.0	13	117						
B-2	62.5	988.5	21	107						
B-2	90.0	961.0	15	111						
B-3	15.0	1034.5	4	109						
B-3	22.5	1027.0	36					65	37	28
B-3	25.0	1024.5	26				18			
B-3	27.5	1022.0	26				18			
B-3	32.5	1017.0	25				24			
B-3	35.0	1014.5	15	114						
B-3	47.5	1002.0	24				21			
B-3	55.0	994.5	18	106						
B-3	65.0	984.5	16	115						
B-3	75.0	974.5	15	120						
B-4	10.0	1038.5	19				8			
B-4	15.0	1033.5	19				9			
B-4	20.0	1028.5	21				22			
B-4	25.0	1023.5	51					47	32	15
B-4	32.5	1016.0	11	122						
B-4	45.0	1003.5	16	110						
B-4	55.0	993.5	12	117						
B-4	65.0	983.5	17	113						
B-5	15.0	1035.0	4	119						

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TURNERCONS-1-02

SUMMARY OF LABORATORY DATA
(continued)

AUGUST 2010

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-16

LAB SUMMARY TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/11/10:KT

SAMPLE INFORMATION			MOISTURE CONTENT (PERCENT)	DRY DENSITY (PCF)	SIEVE			ATTERBERG LIMITS		
EXPLORATION NUMBER	SAMPLE DEPTH (FEET)	ELEVATION (FEET)			GRAVEL (PERCENT)	SAND (PERCENT)	P200 (PERCENT)	LIQUID LIMIT (PERCENT)	PLASTIC LIMIT (PERCENT)	PLASTICITY INDEX (PERCENT)
B-5	20.0	1030.0	39				65	40	32	8
B-5	22.5	1027.5	34				69	49	28	21
B-5	25.0	1025.0	26				11	22	19	3
B-5	27.5	1022.5	13	114						
B-5	30.0	1020.0	24				9			
B-5	32.5	1017.5	28				38	31	22	9
B-5	40.0	1010.0	19	105						
B-5	55.0	995.0	13	118						
B-5	65.0	985.0	16	116						
B-6	10.5	1045.0	18				19			
B-6	12.5	1043.0	25				11			
B-6	15.0	1040.5						56	30	26
B-6	20.0	1035.5	16				13			
B-6	32.5	1023.0						42	22	20
B-7	10.0	1044.0	19				36			
B-7	12.5	1041.5	16				21			
B-7	15.0	1039.0						32	25	7
B-7	17.5	1036.5	22				37			
B-7	27.5	1026.5	8				6			
B-8	10.0	1041.5	3				3			
B-8	15.0	1036.5	18				28			
B-8	25.0	1026.5						36	33	3
B-8	35.0	1016.5	18				24	26	18	8
B-9	10.0	1039.6	22				4			
B-9	12.5	1037.1	20				8			
B-9	17.5	1032.1	18				10			
B-9	20.0	1029.6	18				33			

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TURNERCONS-1-02

SUMMARY OF LABORATORY DATA
(continued)

AUGUST 2010

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-16

LAB SUMMARY TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/11/10:KT

SAMPLE INFORMATION			MOISTURE CONTENT (PERCENT)	DRY DENSITY (PCF)	SIEVE			ATTERBERG LIMITS		
EXPLORATION NUMBER	SAMPLE DEPTH (FEET)	ELEVATION (FEET)			GRAVEL (PERCENT)	SAND (PERCENT)	P200 (PERCENT)	LIQUID LIMIT (PERCENT)	PLASTIC LIMIT (PERCENT)	PLASTICITY INDEX (PERCENT)
B-9	22.5	1027.1						47	32	15
B-9	25.0	1024.6						38	30	8
B-9	27.5	1022.1	18				9			
B-10	10.0	1041.0	23				9			
B-10	12.5	1038.5	9				5			
B-10	15.0	1036.0	18				9			
B-10	20.0	1031.0	20				32			
B-10	22.5	1028.5	30				56	31	30	1
B-10	25.0	1026.0						42	32	10
B-10	27.5	1023.5	29				29			
B-10	30.0	1021.0					21			
B-10	32.5	1018.5	15				12			
B-10	35.0	1016.0	20				7			
B-10	40.0	1011.0	18				15			
B-10	42.5	1008.5	17				15			
B-10	45.0	1006.0	19				10			
B-10	47.5	1003.5	12				7			
B-10	50.0	1001.0					21			

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TURNERCONS-1-02

SUMMARY OF LABORATORY DATA
(continued)

AUGUST 2010

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-16

Turner-1-02 July 13-16, 2010
Sampled by SFK

Turner-1-02 – Supplemental Field Log – Blows by Inch

Boring B-6

Depth	1	2	3	4	5	6		7	8	9	10	11	12		13	14	15	16	17	18
2.5																				
5																				
7.5																				
10																				
12.5																				
15																				
17.5																				
20	1	2	1	2	2	3		2	3	3	2	4	2		3	4	2	4	4	3
22.5	2	1	2	2	2	2		2	3	3	3	3	3		3	3	2	2	4	3
25	1	1	2	3	1	2		2	2	3	2	2	3		7	8	5	6	6	7
27.5	1	3	3	3	3	3		4	3	5	4	5	5		5	5	4	4	6	6
30	2	2	4	4	5	5		5	5	5	6	6	7		7	6	6	8	6	7
32.5	1	1	1	2	1	2		1	2	1	2	2	2		2	3	3	2	2	2
35	3	3	2	3	3	5		3	4	5	7	6	5		5	8	7	6	6	6
37.5	1	2	6	5	7	4		6	7	7	8	8	8		9	6	8	7	9	8
40	3	7	7	8	9	8		12	13	13	12	-	-		-	-	-	-	-	-
42.5	1	3	4	4	4	5		7	6	7	6	8	9		7	7	8	9	7	7
45	4	6	11	10	9	10		15	11	9	10	10	-		-	-	-	-	-	-
47.5	3	3	4	5	4	8		5	5	6	4	6	7		4	5	6	7	6	5
50	2	4	4	3	4	6		5	5	6	7	7	6		7	6	7	7	8	6
52.5	2	4	4	4	5	7		7	7	7	8	8	7		8	8	9	9	9	10
55	2	2	2	2	3	2		3	3	3	4	3	4		3	3	3	5	5	9
57.5	2	2	4	3	4	4		5	6	4	6	8	10		11	12	12	15	-	-
60	2	4	4	3	5	5		5	5	6	6	10	9		12	12	10	11	12	-
62.5	4	6	19	16	20	-		-	-	-	-	-	-		-	-	-	-	-	-
65	3	6	7	5	8	7		6	8	5	8	6	6		8	7	8	8	8	6
67.5	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-
70	2	4	6	7	9	7		8	9	10	8	8	10		8	10	9	9	9	6
72.5	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-
75	2	2	3	4	4	4		3	4	2	4	4	5		5	5	5	5	6	6
77.5																				
80																				
82.5																				
85																				
87.5																				
90																				
92.5																				
95																				
97.5																				
100																				

Turner-1-02 July 13-16, 2010
Sampled by SFK

Boring B-7

Depth	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
2.5																		
5																		
7.5																		
10																		
12.5																		
15																		
17.5																		
20																		
22.5	1	2	2	2	4	3	3	5	3	5	5	6	5	5	5	4	6	5
25	2	3	3	4	1	3	2	3	2	3	3	4	4	4	5	5	5	5
27.5	2	3	3	3	2	2	2	2	2	2	2	3	3	3	2	2	2	2
30	1	3	3	4	5	4	6	9	9	7	7	7	7	6	3	3	4	4
32.5	1	2	3	4	5	4	4	5	4	4	5	3	5	5	6	4	7	7
35	2	3	5	6	5	6	5	6	5	7	6	9	6	8	7	6	9	6
37.5	4	14	10	11	14	-	-	-	-	-	-	-	-	-	-	-	-	-
40	4	3	5	6	6	6	6	5	5	6	6	8	5	8	8	6	7	8
42.5	2	3	3	6	5	5	6	6	8	6	8	8	8	9	9	8	10	10
45	4	8	10	10	9	3	7	12	11	13	14	14	13	11	16	12	-	-
47.5	2	4	4	5	5	4	5	5	5	6	6	6	5	6	7	7	7	7
50	3	3	4	5	4	5	6	6	6	6	7	7	5	7	6	6	7	6
52.5	1	3	5	5	5	7	7	5	6	6	7	6	7	7	9	10	6	6
55	4	4	5	4	5	6	6	6	5	6	7	6	5	7	7	7	5	6
57.5	3	4	6	5	5	6	6	6	6	8	7	6	6	6	8	6	7	7
60	4	5	4	4	5	8	6	8	8	9	10	12	12	10	12	10	10	13
62.5	2	5	7	6	8	6	7	8	7	8	10	10	9	8	10	12	12	-
65	4	10	16	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-
67.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
70	3	4	6	4	8	5	6	6	8	10	10	8	7	7	10	10	7	8
72.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
75	2	3	4	4	4	4	5	4	5	6	6	6	6	7	7	8	8	7
77.5																		
80																		
82.5																		
85																		
87.5																		
90																		
92.5																		
95																		
97.5																		
100																		

Turner-1-02
Sampled by SFK

July 13-16, 2010

Boring B-9

Depth	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
2.5																		
5																		
7.5																		
10																		
12.5																		
15																		
17.5																		
20																		
22.5																		
25																		
27.5																		
30	1	1	4	3	4	5	4	4	4	5	5	4	5	5	4	7	4	5
32.5	P	1	1	1	1	1	1	1	2	1	1	1	3	3	4	3	4	3
35	1	3	4	3	4	3	4	5	4	4	6	4	5	7	5	5	5	5
37.5	1	2	2	2	3	2	3	2	3	3	4	3	3	3	3	3	4	3
40	2	3	5	6	5	5	6	6	6	6	5	7	6	7	7	8	8	8
42.5	1	2	2	3	3	3	3	3	4	4	3	5	6	3	3	4	3	3
45	2	3	4	4	7	5	8	10	9	9	9	8	9	9	8	9	9	10
47.5	2	3	2	3	5	4	6	5	6	5	5	5	5	5	5	6	6	5
50	2	3	5	6	5	6	6	6	6	6	6	6	9	7	7	9	9	6
52.5	1	2	5	5	5	7	8	8	7	7	8	7	7	7	6	7	8	7
55	2	3	6	6	5	6	6	8	6	7	8	6	8	7	6	7	7	7
57.5	2	4	6	6	7	8	8	7	8	10	15	11	9	9	10	7	6	6
60	4	12	12	12	11	11	-	-	-	-	-	-	-	-	-	-	-	-
62.5	2	4	6	5	9	9	9	9	9	6	9	10	7	6	7	9	10	10
65	2	4	6	7	8	7	8	7	8	7	8	8	8	8	10	8	8	7
67.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
70	2	6	9	13	15	20	14	17	20	-	-	-	-	-	-	-	-	-
72.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
75	2	3	4	4	4	5	5	6	6	6	7	8	7	7	8	8	6	7
77.5																		
80																		
82.5																		
85																		
87.5																		
90																		
92.5																		
95																		
97.5																		
100																		

Turner-1-02
Sampled by SFK

July 13-16, 2010

Boring B-10

Depth	1	2	3	4	5	6		7	8	9	10	11	12		13	14	15	16	17	18
2.5																				
5																				
7.5																				
10																				
12.5																				
15																				
17.5																				
20																				
22.5																				
25																				
27.5																				
30																				
32.5	1	3	3	3	2	3		2	3	3	2	2	2		2	2	2	2	2	2
35	1	2	2	2	2	2		2	3	2	3	3	2		3	3	3	2	3	2
37.5	3	2	4	4	5	4		3	4	4	4	4	6		5	5	6	7	5	6
40	1	2	3	3	2	2		3	2	2	2	3	3		2	2	2	2	3	3
42.5	2	2	3	5	5	3		5	5	7	7	6	6		5	6	7	7	6	7
45	1	2	3	2	2	2		2	2	2	2	2	3		2	2	2	2	2	2
47.5	1	4	3	3	4	3		3	2	3	3	3	4		4	4	3	3	3	3
50	2	2	2	4	5	5		6	5	7	7	6	6		6	6	6	9	6	7
52.5	3	4	4	7	6	5		7	6	8	8	9	9		9	8	9	8	9	8
55	3	6	8	6	8	8		8	7	8	8	10	9		9	14	10	12	12	-
57.5	3	5	7	6	7	6		8	8	8	10	10	14		8	10	12	16	8	-
60	2	6	8	10	10	8		10	15	15	15	-	-		-	-	-	-	-	-
62.5	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-
65	7	10	12	10	12	12		13	14	16	16	-	-		-	-	-	-	-	-
67.5	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-
70	3	6	7	6	8	8		12	12	10	13	13	-		-	-	-	-	-	-
72.5	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-
75	3	3	3	3	4	5		4	5	6	5	6	5		6	5	7	7	6	8
6787.5																				
80																				
82.5																				
85																				
87.5																				
90																				
92.5																				
95																				
97.5																				
100																				

Turner-1-02 May 17 -20, 2010
Sampled by CJZ / SFK

Turner-1-02 – Supplemental Field Log – Blows by Inch

Boring B-1

Depth	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
2.5																		
5																		
7.5																		
10																		
12.5																		
15																		
17.5																		
20	1	0	1	0	1	1	1	0	1	0	1	1	1	1	0	1	1	1
22.5	-	-	-	P	1	1	0	1	0	0	1	1	1	1	1	1	1	1
25																		
27.5	2	2	2	1	2	1	2	2	2	2	1	3	2	2	2	3	3	4
30	2	2	2	4	2	3	4	4	4	3	4	2	3	4	4	3	3	3
32.5	1	2	2	2	2	2	2	3	3	2	2	2	3	3	2	1	2	2
35	1	0	1	0	1	1	1	1	2	2	1	1	1	1	2	1	1	1
37.5	-	-	-	P	-	-	-	-	-	P	-	-	2	4	3	1	1	2
40	1	2	3	1	3	2	3	3	3	3	3	3	2	4	3	3	3	3
42.5	1	0	1	-	-	-	1	-	P	-	-	1	1	0	1	0	1	0
45	-	-	-	-	1	1	1	1	1	1	1	2	2	3	2	3	3	3
47.5	1	1	2	2	2	2	2	3	3	2	3	2	2	3	2	2	2	2
50	1	1	2	0	2	2	2	2	1	2	2	1	1	2	1	1	2	2
52.5	1	1	2	2	1	1	2	2	2	2	2	3	2	2	3	2	2	2
55	1	1	1	-	-	1	1	1	1	-	-	-	1	1	-	-	-	1
57.5	1	1	0	1	0	1	1	0	1	0	1	1	1	0	1	1	0	1
60	1	3	3	1	2	2	4	2	3	3	4	3	2	3	3	3	3	6
62.5	1	3	5	5	7	6	6	6	7	7	6	7	7	10	8	7	6	6
65	2	4	7	10	15	11	13	13	15	13	14	15	-	-	-	-	-	-
67.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
70	2	6	7	6	7	8	8	7	8	8	8	8	10	8	10	9	7	8
72.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
75	2	7	6	8	7	8	9	10	19	25	-	-	-	-	-	-	-	-
77.5																		
80																		
82.5																		
85																		
87.5																		
90																		
92.5																		
95																		
97.5																		
100																		

Turner-1-02 May 17 -20, 2010
Sampled by CJZ / SFK

Boring B-1A

Depth	1	2	3	4	5	6		7	8	9	10	11	12		13	14	15	16	17	18
2.5																				
5																				
7.5																				
10																				
12.5																				
15																				
17.5																				
20																				
22.5																				
25																				
27.5																				
30	-	1	-	1	1	1		2	2	3	2	3	2		3	3	3	3	3	3
32.5	1	1	2	2	2	2		3	2	2	2	2	2		2	2	2	2	3	2
35	1	2	1	2	2	2		1	3	2	2	2	2		2	3	2	2	3	2
37.5	2	1	2	2	2	2		1	2	2	2	2	2		2	2	2	2	2	1
40	1	1	1	1	2	2		1	2	2	2	2	2		3	2	3	2	2	2
42.5	1	2	0	2	2	4		2	5	3	3	3	4		3	2	4	4	4	4
45	2	2	2	3	2	2		2	2	3	3	2	3		2	3	3	2	2	3
47.5	1	2	0	2	2	2		2	2	2	2	2	2		2	2	2	2	4	3
50	2	2	3	3	3	2		3	3	2	2	3	2		2	3	2	3	2	4
52.5	3	5	5	5	5	5		6	7	7	4	5	7		6	6	7	6	6	7
55	2	4	6	5	7	5		6	7	9	10	8	8		8	7	6	6	8	7
57.5	3	3	6	4	5	8		6	5	6	7	8	6		6	6	6	5	8	6
60	3	4	4	6	6	4		4	4	5	8	7	7		5	6	7	6	7	6
62.5																				
65																				
67.5																				
70																				
72.5																				
75																				
77.5																				
80																				
82.5																				
85																				
87.5																				
90																				
92.5																				
95																				
97.5																				
100																				

Turner-1-02 May 17 -20, 2010
Sampled by CJZ / SFK

Boring B-2

Depth																				
2.5																				
5																				
7.5																				
10																				
12.5																				
15																				
17.5																				
20																				
22.5																				
25																				
27.5																				
30	1	1	1	2	2	2		2	2	2	2	3	3		2	3	2	2	2	2
32.5	1	1	1	1	1	1		1	1	1	1	1	1		1	2	1	1	2	2
35	2	1	1	1	1	1		2	2	3	2	3	4		5	6	7	8	6	5
37.5	2	2	2	2	2	2		2	3	2	7	9	4		5	5	4	4	4	4
40	2	2	3	4	5	4		5	5	5	5	6	4		4	6	5	5	5	7
42.5	2	2	3	3	4	5		2	3	3	5	7	3		4	4	1	4	5	4
45	2	5	5	5	8	6		5	8	10	10	10	10		9	11	11	11	11	9
47.5	2	4	5	4	5	5		3	5	5	6	3	4		4	4	5	5	5	6
50	2	3	3	4	5	4		4	4	5	4	6	3		6	5	7	6	5	5
52.5	1	3	4	4	5	4		4	4	3	6	4	5		6	6	5	5	4	6
55	2	7	9	8	5	5		7	7	6	7	6	6		7	5	7	8	9	8
57.5	3	5	6	4	5	6		7	5	6	6	5	5		6	6	7	6	7	5
60	1	1	3	5	7	5		9	6	10	6	10	8		7	9	9	8	8	7
62.5	3	6	7	8	5	6		8	8	7	6	5	5		7	9	5	6	12	9
65	6	9	10	6	6	6		8	8	8	7	12	13		11	20	19	-	-	-
67.5	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-
70	3	5	6	5	6	8		6	7	8	7	8	7		6	7	8	6	4	8
72.5	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-
75	3	4	4	4	4	4		4	6	5	4	5	4		4	7	5	5	7	8
77.5	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-
80	1	2	2	5	4	4		4	5	5	5	3	4		4	6	7	5	4	6
82.5	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-
85	2	5	6	7	10	8		8	9	8	10	10	7		12	12	25	-	-	-
87.5	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	
90	4	10	12	13	12	16		10	20	20	-	-	-		-	-	-	-	-	-
92.5	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-
95	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-
97.5	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-
100	4	4	3	2	3	3		4	4	3	5	4	4		8	9	10	7	7	15

Turner-1-02 May 17 -20, 2010
Sampled by CJZ / SFK

Boring B-3

Depth	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
2.5																		
5																		
7.5																		
10																		
12.5																		
15																		
17.5																		
20																		
22.5																		
25																		
27.5																		
30	1	1	2	2	2	2	2	2	2	2	2	2	2	3	1	2	2	1
32.5	1	1	1	2	2	2	3	3	3	2	3	3	3	3	3	3	3	3
35	1	3	3	3	3	3	3	3	3	2	2	3	3	3	2	3	3	3
37.5	1	1	1	2	1	2	2	3	3	3	3	3	3	3	3	4	4	3
40	2	1	2	2	3	2	2	2	3	3	2	2	3	3	3	3	4	4
42.5	1	2	2	2	2	3	2	2	3	3	3	2	3	3	3	4	4	4
45	1	2	1	2	1	2	2	2	3	2	2	3	2	2	2	2	2	2
47.5	1	1	1	2	2	1	2	2	2	1	3	2	3	2	2	2	2	3
50	1	2	4	5	5	6	5	7	7	6	5	5	5	6	6	6	6	5
52.5	3	3	4	5	6	4	6	5	5	6	7	6	6	7	8	6	6	6
55	4	6	10	11	14	9	19	-	-	-	-	-	-	-	-	-	-	-
57.5	4	5	6	5	7	6	7	7	6	7	8	10	9	10	8	8	9	8
60	3	5	8	8	11	9	11	17	15	12	-	-	-	-	-	-	-	-
62.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
65	5	6	9	11	12	13	13	14	14	15	15	17	-	-	-	-	-	-
67.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
70	5	6	7	6	6	7	6	8	7	7	8	8	9	8	9	10	10	8
72.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
75	3	6	9	11	13	16	13	14	14	15	14	15	-	-	-	-	-	-
77.5																		
80																		
82.5																		
85																		
87.5																		
90																		
92.5																		
95																		
97.5																		
100																		

Turner-1-02 May 17 -20, 2010
Sampled by CJZ / SFK

Boring B-4

Depth	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
2.5																		
5																		
7.5																		
10																		
12.5																		
15																		
17.5																		
20																		
22.5																		
25																		
27.5																		
30	1	1	2	1	2	2	2	3	2	3	2	3	2	2	2	3	3	3
32.5	1	3	3	4	3	3	2	4	3	4	3	4	3	4	3	4	3	4
35	1	1	2	2	2	1	2	2	2	3	2	2	2	2	3	2	2	3
37.5	1	2	2	3	2	2	3	2	3	3	2	3	3	3	3	3	2	2
40	1	3	2	2	2	3	2	2	3	2	3	2	2	3	2	2	3	2
42.5	1	2	3	2	2	1	2	2	2	1	2	1	2	2	2	1	1	2
45	1	3	5	5	5	5	6	8	10	8	8	9	18	16	16	-	-	-
47.5	3	2	4	6	9	10	7	9	8	9	9	8	-	-	-	-	-	-
50	2	4	7	4	6	7	7	7	8	8	8	8	9	6	9	10	8	9
52.5	2	3	4	6	6	5	4	7	6	6	8	8	8	7	8	9	9	7
55	4	5	6	7	9	8	7	7	10	8	10	12	12	10	13	15	-	-
57.5	3	4	4	6	6	6	7	9	9	9	9	9	6	8	7	6	4	7
60	3	6	8	9	8	7	9	8	9	8	7	9	9	8	8	7	7	10
62.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
65	4	5	7	6	7	7	8	11	10	10	11	-	-	-	-	-	-	-
67.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
70	3	6	8	7	7	7	8	7	5	9	10	10	7	8	10	8	10	9
72.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
75	5	5	8	6	6	6	3	4	5	9	8	7	5	6	6	7	7	7
77.5																		
80																		
82.5																		
85																		
87.5																		
90																		
92.5																		
95																		
97.5																		
100																		

Turner-1-02 May 17 -20, 2010
Sampled by CJZ / SFK

Boring B-5

Depth	1	2	3	4	5	6		7	8	9	10	11	12		13	14	15	16	17	18
2.5																				
5																				
7.5																				
10																				
12.5																				
15																				
17.5																				
20																				
22.5																				
25																				
27.5																				
30	1	1	2	2	2	2		2	2	2	2	2	1		1	2	1	1	1	1
32.5	P	-	-	-	1	1		1	1	0	1	1	1		1	1	0	1	2	2
35	1	2	2	2	3	3		2	3	4	2	4	3		3	4	4	3	4	4
37.5	2	2	3	3	3	3		3	3	3	3	4	4		4	2	3	2	3	2
40	1	3	4	5	4	4		4	4	5	4	3	5		4	4	4	4	5	4
42.5	1	1	2	1	2	2		2	2	2	3	2	2		3	2	2	2	1	2
45	2	2	4	4	4	5		4	3	4	6	5	5		6	5	5	6	5	6
47.5	2	3	4	4	5	4		6	7	6	5	6	7		8	8	7	6	8	7
50	2	5	6	7	6	6		6	7	6	5	7	7		7	6	7	8	8	6
52.5	1	3	4	7	6	7		6	5	6	6	7	7		5	6	7	7	6	5
55	3	4	8	9	9	8		10	12	10	10	12	-		-	-	-	-	-	-
57.5	2	2	3	4	4	5		7	7	6	7	6	7		7	9	8	8	8	8
60	2	5	5	6	6	6		7	7	7	4	7	7		8	8	9	8	7	7
62.5	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-
65	3	4	6	5	11	13		14	20	17	-	-	-		-	-	-	-	-	-
67.5	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-
70	2	5	5	6	7	6		8	6	6	7	5	7		6	8	7	5	5	7
72.5	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-
75	2	3	5	5	6	4		4	5	5	5	7	5		10	12	9	7	7	8
77.5																				
80																				
82.5																				
85																				
87.5																				
90																				
92.5																				
95																				
97.5																				
100																				

APPENDIX B

BORING B1

CLIENT:	Universal Health Services, Inc.	**PSI PROJECT NO.:**	056-45025
PROJECT:	Temecula Hospital & Medical Buildings	**BORING TYPE:**	Hollow Stem Auger
LOCATION:	Temecula, California	**ELEVATION:**	1060 ft.
DATE DRILLED:	03/10/2004	**LOGGED BY:**	SM

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Elevation [ft]	Depth [ft]	Graphic Log	Sample Type	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows/6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
				Bulk: **SANDY SILT (ML),** light brown, slightly moist, fine grained, roots				Corrosion	
				SILTY SAND (SM), light brown, dry to slightly moist, dense, fine grained	16 30 40	3.0	107.9		
1055	5			**SILTY SAND (SM),** light brown, dry to slightly moist, medium dense, fine grained	15 21 25	6.7	110.3		
1050	10			**SILTY SAND (SM),** light brown, slightly moist, medium dense, fine grained	14 14 20	13.0	115.2		
1045	15			**CLAYEY SILT (ML),** dark brown, slightly moist, stiff	6 11 10	14.2	111.1	Direct Shear	
1040	20			**CLAYEY SANDY SILT (ML),** dark brown, moist, stiff, fine grained, minor amount of coarse sand	7 10 15	18.7	110.6	Corrosion	
1035	25			**SAND (SW),** dark brown, moist, medium dense	13 17 19	14.5	118.7		
1030	30			**SAND (SW),** light brown, wet, dense, transitions to **CLAYEY SILT (ML),** dark brown, wet, hard	20 30 40	18.8	112.4	Direct Shear	
1025	35			**SAND (SW),** light brown, wet, very dense, transitions to **CLAYEY SILT (ML),** dark brown, slightly moist, hard	20 50/6"	22.4	108.5		

▽

BORING/TEST PIT LOG 056-45025 BORING LOG.GPJ PSI LONG BEACH.GDT 4/27/06

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FIGURE NO.

BORING B1

CLIENT:	Universal Health Services, Inc.	**PSI PROJECT NO.:**	056-45025
PROJECT:	Temecula Hospital & Medical Buildings	**BORING TYPE:**	Hollow Stem Auger
LOCATION:	Temecula, California	**ELEVATION:**	1060 ft.
DATE DRILLED:	03/10/2004	**LOGGED BY:**	SM

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Elevation [ft]	Depth [ft]	Graphic Log	Sample Type	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows/6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
				GRAVELLY SAND (SW), light brown, wet, very dense	50/6"	12.3	118.9	Direct Shear	
1015	45			**GRAVELLY SAND (SW),** light brown, wet, very dense	30 50/6"	10.6	129.5		
1010	50			No sample was recovered	20 45 50/5"				No sample recovered.
1005	55			**GRAVELLY SAND (SW),** light brown, wet, very dense	20 50/6"				Water added to aid drilling on remaining depths. Sand Catcher applied to remaining depths.
1000	60			**GRAVELLY SAND (SW),** light brown, wet, medium dense	10 17 20				
995	65			**GRAVELLY SAND (SW),** light brown, wet, very dense	47 50/4"				
990	70			**GRAVELLY SAND (SW),** light brown, wet, very dense	15 35 50/6"				
				Total Depth: 71.5 ft. Groundwater was encountered at 39 ft. Boring was backfilled with bentonite chips.					

BORING/TEST PIT LOG 056-45025 BORING LOG.GPJ PSI LONG BEACH.GDT 4/27/06

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FIGURE NO.

BORING B2

CLIENT:	Universal Health Services, Inc.	**PSI PROJECT NO.:**	056-45025
PROJECT:	Temecula Hospital & Medical Buildings	**BORING TYPE:**	Hollow Stem Auger
LOCATION:	Temecula, California	**ELEVATION:**	1050 ft.
DATE DRILLED:	03/10/2004	**LOGGED BY:**	SM

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Elevation [ft]	Depth [ft]	Graphic Log	Sample Type	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows/6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
				Bulk: **SILTY SAND (ML),** dark brown, slightly moist, fine grained				Corrosion	
				SANDY SILT (ML), dark brown, dry to slightly moist, hard	13 16 40	10.3	90.3		
1045	5			**SILTY SAND (SM),** dark brown, dry to slightly moist, very stiff, iron oxide staining	20 20 24	14.6	90.5	Sieve	
1040	10			**SILTY SAND (SM),** light brown, dry, dense, fine and medium grained	16 24 33	1.3	108.9	Direct Shear	
1035	15			**SILTY SAND (SM),** light brown, dry, dense, fine and medium grained, minor amount of gravel	16 24 36	3.1	109.6	Sieve	
1030	20			**SANDY SILT (ML),** dark blue grey, slightly moist, very stiff	12 13 15	42.8	81.1	Sieve	
1025	25			**SAND (SW),** light brown, wet, very dense, fine to coarse grained	20 30 35	13.8	110.6	Direct Shear	
1020	30			**SILTY SAND (SM),** light brown, wet, medium dense	9 20 25	11.3	121.2	Sieve	
1015	35			No sample was recovered	30 50/6"				

BORING/TEST PIT LOG 056-45025 BORING LOG.GPJ PSI LONG BEACH.GDT 4/27/06

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FIGURE NO.

BORING B2

CLIENT:	Universal Health Services, Inc.	**PSI PROJECT NO.:**	056-45025
PROJECT:	Temecula Hospital & Medical Buildings	**BORING TYPE:**	Hollow Stem Auger
LOCATION:	Temecula, California	**ELEVATION:**	1050 ft.
DATE DRILLED:	03/10/2004	**LOGGED BY:**	SM

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Elevation [ft]	Depth [ft]	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows/6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
		SILTY SAND (SM), light brown, wet, very dense	15 35 50			Sieve	Sand Catcher applied at 40 ft. and remaining depths.
1005	45	**SAND (SP),** light brown, wet, dense	15 35 41				
1000	50	**SILTY SAND (SM),** light brown, wet, medium dense, fine and medium grained	10 15 25			Sieve	
995	55	**SAND (SP),** light brown, wet, dense, fine and medium grained	15 25 40				
990	60	**SILTY SAND (SM),** light brown, wet, dense, fine and medium grained	8 18 30			Sieve	
985	65	**SAND (SP),** light brown, wet, dense, fine and medium grained	18 30 45				
980	70	**SILTY SAND (SM),** light brown, wet, dense, fine to coarse grained	10 28 30			Sieve	
		Total Depth: 71.5 ft. Groundwater was encountered at 24 ft. Boring was backfilled with bentonite chips.					

BORING/TEST PIT LOG 056-45025 BORING LOG.GPJ PSI LONG BEACH.GDT 4/27/06

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FIGURE NO.

BORING B3

CLIENT:	Universal Health Services, Inc.	**PSI PROJECT NO.:**	056-45025
PROJECT:	Temecula Hospital & Medical Buildings	**BORING TYPE:**	Hollow Stem Auger
LOCATION:	Temecula, California	**ELEVATION:**	1051 ft.
DATE DRILLED:	03/10/2004	**LOGGED BY:**	SM

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Elevation [ft]	Depth [ft]	Graphic Log	Sample Type	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows/6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
1050									
1045	5			**SANDY SILT (ML),** light brown, dry to slightly moist, hard, fine grained, iron oxide staining	21 23 26	6.8	100.9		
1040	10			**SAND (SP),** light brown, dry to slightly moist, medium dense, iron oxide staining, fine to medium grained	13 18 21	2.4	108.7		
1035	15			**GRAVELLY SAND (SW),** light brown, dry to slightly moist, medium dense	20 20 24	2.8	116.6		
1030	20			**SAND (SP),** light brown, slightly moist, medium dense, medium grained, transitions to **CLAYEY SILT (CL-ML),** dark grey, slightly moist, very stiff.	13 12 20	45.8	80.2		
1025	25			**SAND (SP),** light brown, wet, dense, fine and medium grained	30 50/6"	16.9	95.3		

Total Depth: 26.5 ft.
Groundwater was not encountered.
Boring was backfilled with soil cuttings.

BORING/TEST PIT LOG 056-45025 BORING LOG.GPJ PSI LONG BEACH.GDT 4/27/06

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FIGURE NO.

BORING B4

CLIENT: Universal Health Services, Inc.	**PSI PROJECT NO.:** 056-45025
PROJECT: Temecula Hospital & Medical Buildings	**BORING TYPE:** Hollow Stem Auger
LOCATION: Temecula, California	**ELEVATION:** 1050 ft.
DATE DRILLED: 03/11/2004	**LOGGED BY:** SM

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Elevation [ft]	Depth [ft]	Graphic Log	Sample Type	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows/6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
1045	5			**SILTY SAND (SM),** light brown, dry to slightly moist, dense, fine grained	17 22 29	3.3	104.1		
1040	10			**SAND (SW),** light brown, dry to slightly moist, dense, fine to coase grained, iron oxide staining, coarse grain content decreases with increased depth	15 20 30	2.2	101.6		
1035	15			**SANDY SILT (ML),** dark brown, slightly moist, hard, transitions to **SAND (SW),** light brown, slightly moist, dense, fine grained	20 30 32	4.8	98.6		
1030	20			**CLAYEY SILT (CL-ML),** dark grey blue, slightly moist, very stiff, iron oxide staining	11 15 25	41.7	81.6		
1025	25			**CLAY (CL),** dark blue grey, moist, hard, transitions to **SILT (ML),** dark grey, moist, hard, iron oxide staining, transitions to **GRAVELLY SAND (SW),** orange brown, moist dense	25 32 40	21.3	106.2		

Total Depth: 26.5 ft.
Groundwater was not encountered.
Boring was backfilled with soil cuttings.

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FIGURE NO.

BORING B5

CLIENT: Universal Health Services, Inc.	**PSI PROJECT NO.:** 056-45025
PROJECT: Temecula Hospital & Medical Buildings	**BORING TYPE:** Hollow Stem Auger
LOCATION: Temecula, California	**ELEVATION:** Approximately 1052 above m.s.l
DATE DRILLED: 03/11/2004	**LOGGED BY:** SM

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Depth [ft]	Graphic Log	Sample Type	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows/6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
			SILTY SAND (SM), light brown, dry to slightly moist, dense, fine grained	21 24 48				
5			**SILTY SAND (SM),** light brown, dry to slightly moist, dense, fine grained	15 18 30	10.0	101.4		
10			**SILTY SAND (SM),** dark brown, slightly moist, dense, fine grained	8 13 16	15.6	105.7		
15			**SANDY SILT (ML),** dark grey brown, slightly moist, very stiff	10 14 16	20.4	101.6		
20			**SANDY SILT (ML),** dark grey brown, slightly moist, very stiff	10 15 20	30.5	97.2		
25			**CLAYEY SILT (CL-ML),** dark grey blue, slightly moist, hard, transitions to **SANDY SILT (ML),** dark brown, slightly moist, hard	25 50/4"	21.3	113.0		

Total Depth: 26.5 ft.
Groundwater was not encountered.
Boring was backfilled with soil cuttings.

BORING/TEST PIT LOG 056-45025 BORING LOG.GPJ PSI LONG BEACH.GDT 4/27/06

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FIGURE NO.

BORING B6

CLIENT:	Universal Health Services, Inc.	**PSI PROJECT NO.:**	056-45025
PROJECT:	Temecula Hospital & Medical Buildings	**BORING TYPE:**	Hollow Stem Auger
LOCATION:	Temecula, California	**ELEVATION:**	Approximately 1052 above m.s.l
DATE DRILLED:	03/11/2004	**LOGGED BY:**	SM

Standard Split Spoon | Shelby Tube | Water Level ATD | Modified California | Bulk Sample | Static Water Table

Depth [ft]	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows/6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
	SANDY SILT (ML), light brown, dry to slightly moist, hard, fine grained	14 29 40			Corrosion	
5	**SAND (SP),** light brown, dry to slightly moist, hard, fine grained	28 38 38	5.8	105.8	Direct Shear	
10	**SAND (SW),** light brown, dry to slightly moist, medium dense, fine to coarse grained	13 20 25	7.4	108.8		
15	**SILTY SAND (SM),** dark brown, slightly moist, medium dense, fine grained, iron oxide staining	10 15 25	18.1	109.1		
20	**SILTY SAND (SM),** dark and light brown, slightly moist, medium dense, fine grained, iron oxide staining	10 16 20	4.6	106.1		
25	No sample was recovered	10 10 10				
	Total Depth: 26.5 ft. Groundwater was not encountered. Boring was backfilled with soil cuttings.					

BORING/TEST PIT LOG 056-45025 BORING LOG.GPJ PSI LONG BEACH.GDT 4/27/06

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FIGURE NO.

BORING B7

CLIENT: Universal Health Services, Inc.	**PSI PROJECT NO.:** 056-45025
PROJECT: Temecula Hospital & Medical Buildings	**BORING TYPE:** Hollow Stem Auger
LOCATION: Temecula, California	**ELEVATION:** Approximately 1050 above m.s.l
DATE DRILLED: 03/11/2004	**LOGGED BY:** SM

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Depth [ft]	Graphic Log	Sample Type	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows/6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
5			**SAND (SW),** light brown, dry to slightly moist, medium dense, fine grained, contains roots	8 10 12				
			Total Depth: 6.5 ft. Groundwater was not encountered. Boring was backfilled with soil cuttings.					

BORING/TEST PIT LOG 056-45025 BORING LOG.GPJ PSI LONG BEACH.GDT 4/27/06

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FIGURE NO.

BORING B8

CLIENT: Universal Health Services, Inc.	**PSI PROJECT NO.:** 056-45025
PROJECT: Temecula Hospital & Medical Buildings	**BORING TYPE:** Hollow Stem Auger
LOCATION: Temecula, California	**ELEVATION:** Approximately 1055 above m.s.l
DATE DRILLED: 03/11/2004	**LOGGED BY:** SM

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Depth [ft]	Graphic Log	Sample Type	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows/6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
5			**SILT (ML),** dark brown, slightly moist, very stiff	11 11 10				
			Total Depth: 6.5 ft. Groundwater was not encountered. Boring was backfilled with soil cuttings.					

BORING/TEST PIT LOG 056-45025 BORING LOG.GPJ PSI LONG BEACH.GDT 4/27/06

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FIGURE NO.

BORING B9

CLIENT:	Universal Health Services, Inc.	**PSI PROJECT NO.:**	056-45025
PROJECT:	Temecula Hospital & Medical Buildings	**BORING TYPE:**	Hollow Stem Auger
LOCATION:	Temecula, California	**ELEVATION:**	Approximately 1058 above m.s.l
DATE DRILLED:	03/11/2004	**LOGGED BY:**	SM

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Depth [ft]	Graphic Log	Sample Type	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows/6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
5			**SILTY SAND (SM),** light brown, dry to slightly moist, dense	13 16 22				
			Total Depth: 6.5 ft. Groundwater was not encountered. Boring was backfilled with soil cuttings.					

BORING/TEST PIT LOG 056-45025 BORING LOG.GPJ PSI LONG BEACH.GDT 4/27/06

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FIGURE NO.

BORING B10

CLIENT: Universal Health Services, Inc.	**PSI PROJECT NO.:** 056-45025
PROJECT: Temecula Hospital & Medical Buildings	**BORING TYPE:** Hollow Stem Auger
LOCATION: Temecula, California	**ELEVATION:** Approximately 1048 above m.s.l
DATE DRILLED: 03/11/2004	**LOGGED BY:** SM

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Depth [ft]	Graphic Log	Sample Type	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows/6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
5			**SANDY SILT (ML),** dark brown, slightly moist, stiff	7 6 6				
			Total Depth: 6.5 ft. Groundwater was not encountered. Boring was backfilled with soil cuttings.					

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FIGURE NO.

BORING/TEST PIT LOG 056-45025 BORING LOG.GPJ PSI LONG BEACH.GDT 4/27/06

BORING B11

CLIENT: Universal Health Services, Inc.	**PSI PROJECT NO.:** 056-45025
PROJECT: Temecula Hospital & Medical Buildings	**BORING TYPE:** Hollow Stem Auger
LOCATION: Temecula, California	**ELEVATION:** Approximately 1047 above m.s.l
DATE DRILLED: 03/11/2004	**LOGGED BY:** SM

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Depth [ft]	Graphic Log	Sample Type	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows/6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
5			**SILTY SAND (SM),** light brown, slightly moist, loose, fine grained	5 3 5				
			Total Depth: 6.5 ft. Groundwater was not encountered. Boring was backfilled with soil cuttings.					

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FIGURE NO.

BORING/TEST PIT LOG 056-45025 BORING LOG.GPJ PSI LONG BEACH.GDT 4/27/06

BORING B12

CLIENT: Universal Health Services, Inc.	**PSI PROJECT NO.:** 056-45025
PROJECT: Temecula Hospital & Medical Buildings	**BORING TYPE:** Hollow Stem Auger
LOCATION: Temecula, California	**ELEVATION:** Approximately 1060 above m.s.l
DATE DRILLED: 03/11/2004	**LOGGED BY:** SM

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Depth [ft]	Graphic Log	Sample Type	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows/6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
5			**SILTY SAND (SM),** dark brown, slightly moist, dense, fine grained	25 20 18				
			Total Depth: 6.5 ft. Groundwater was not encountered. Boring was backfilled with soil cuttings.					

BORING/TEST PIT LOG 056-45025 BORING LOG.GPJ PSI LONG BEACH.GDT 4/27/06

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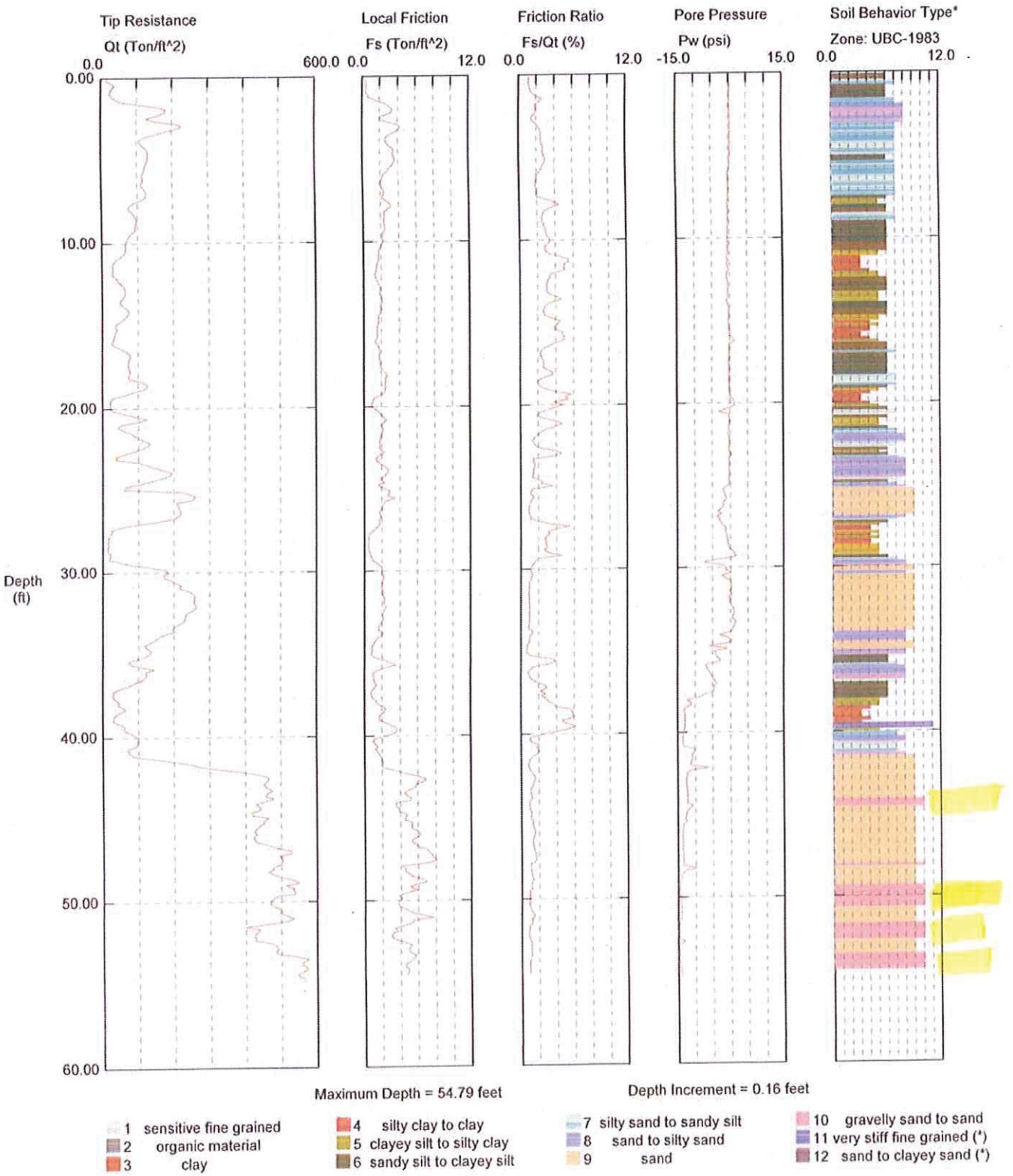
FIGURE NO.

*Soil behavior type and SPT based on data from UBC-1983

TEST AMERICA

Operator: B. BUCKNAM
Sounding: CPT243
Cone Used: 510

CPT Date/Time: 03-10-04 08:00
Location: cpt-1
Job Number: 0

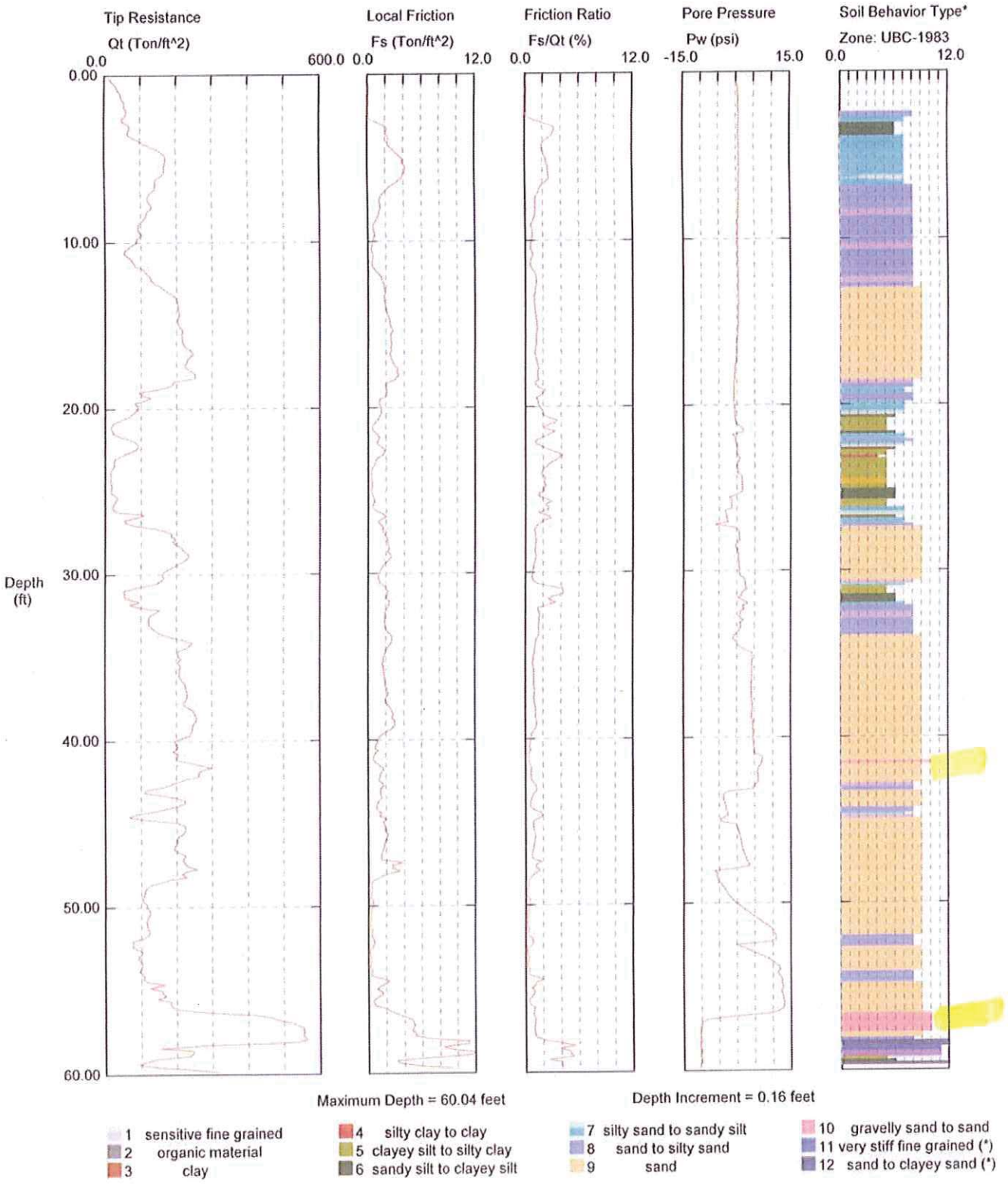


*Soil behavior type and SPT based on data from UBC-1983

TEST AMERICA

Operator: B. BUCKNAM
Sounding: CPT245
Cone Used: 510

CPT Date/Time: 03-10-04 09:32
Location: cpt-2
Job Number: 0

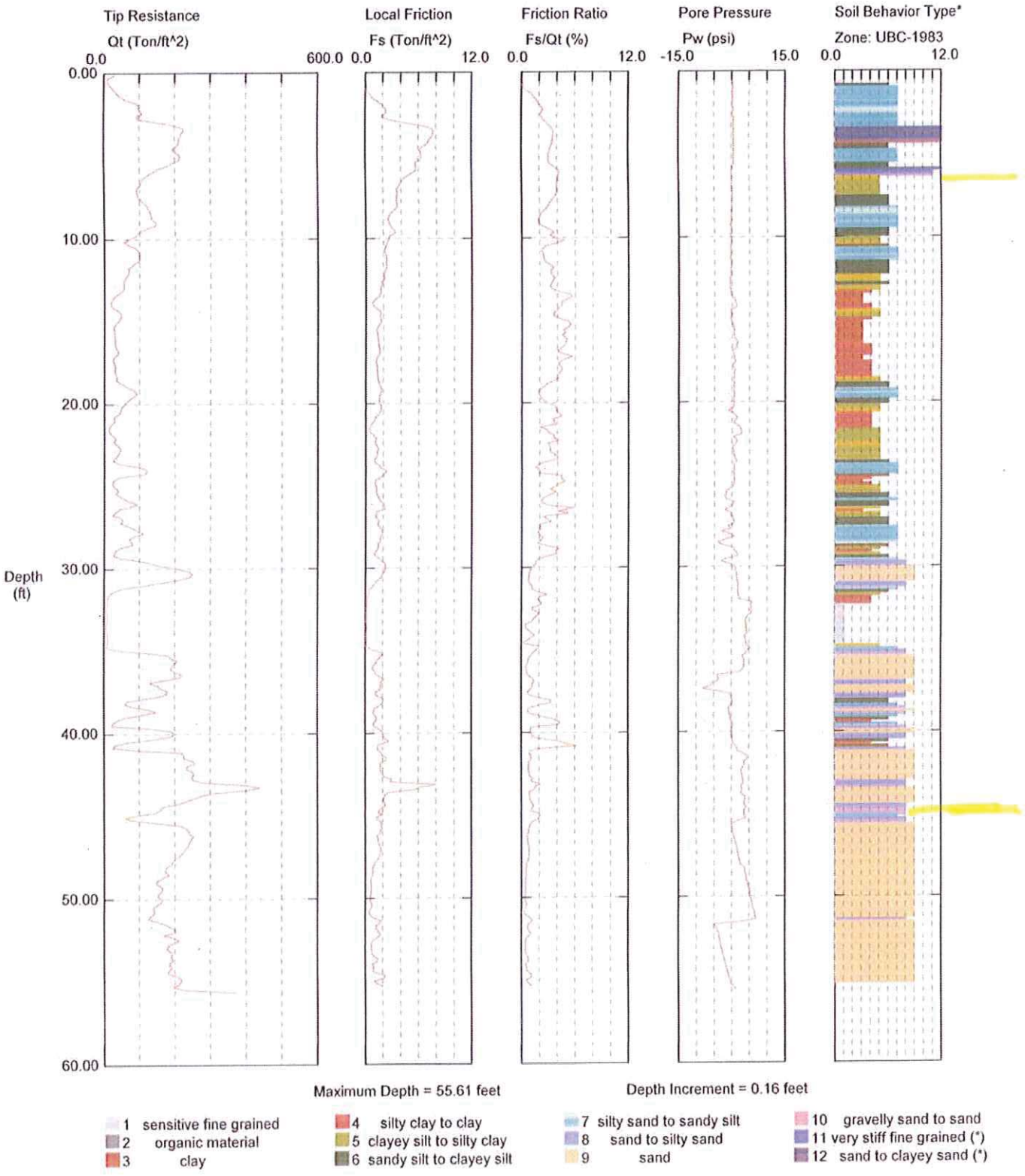


*Soil behavior type and SPT based on data from UBC-1983

TEST AMERICA

Operator: B. BUCKNAM
Sounding: CPT246
Cone Used: 510

CPT Date/Time: 03-10-04 10:52
Location: cpt-3
Job Number: 0

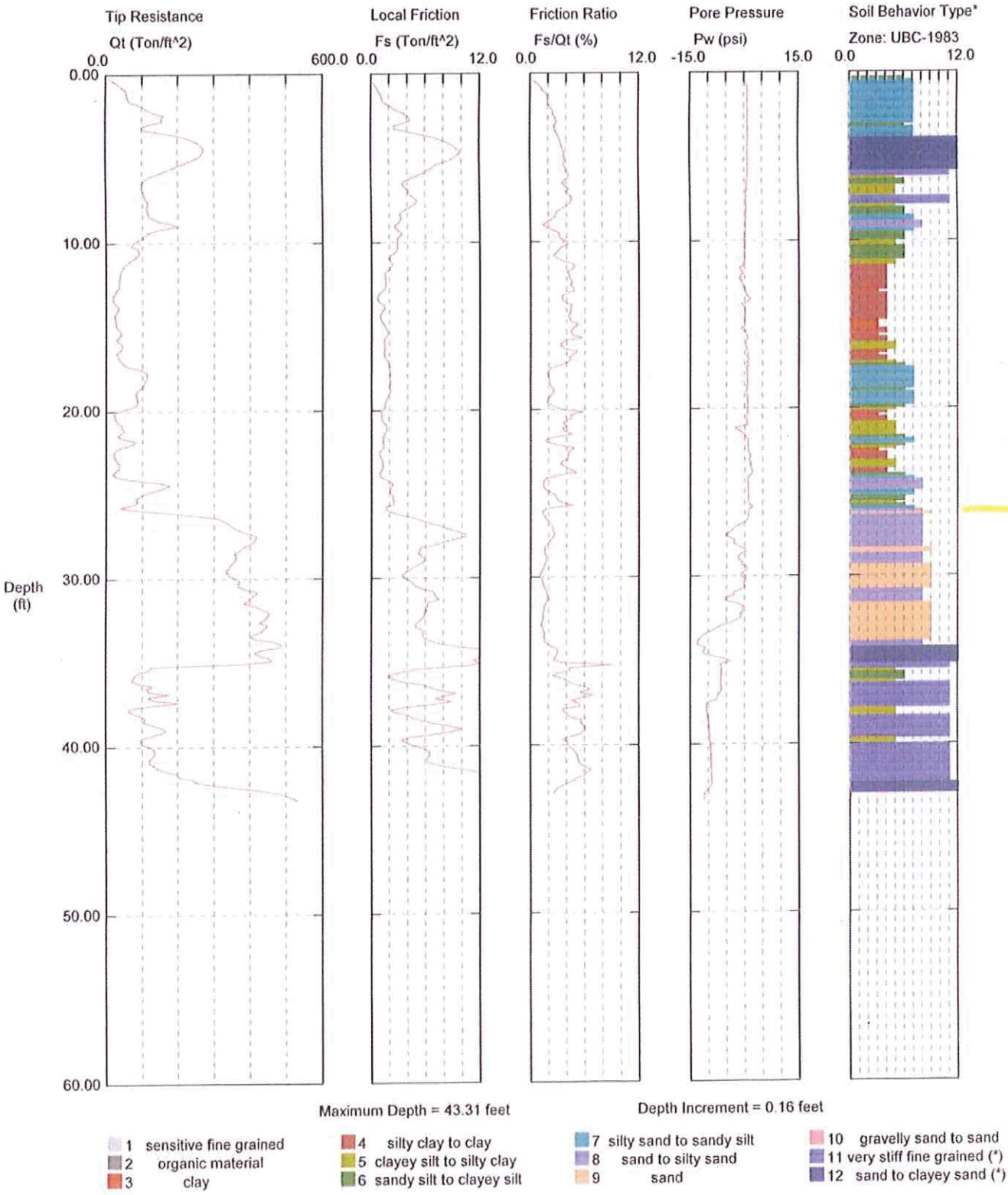


*Soil behavior type and SPT based on data from UBC-1983

TEST AMERICA

Operator: B. BUCKNAM
Sounding: CPT247
Cone Used: 510

CPT Date/Time: 03-10-04 12:16
Location: cpt-4
Job Number: 0

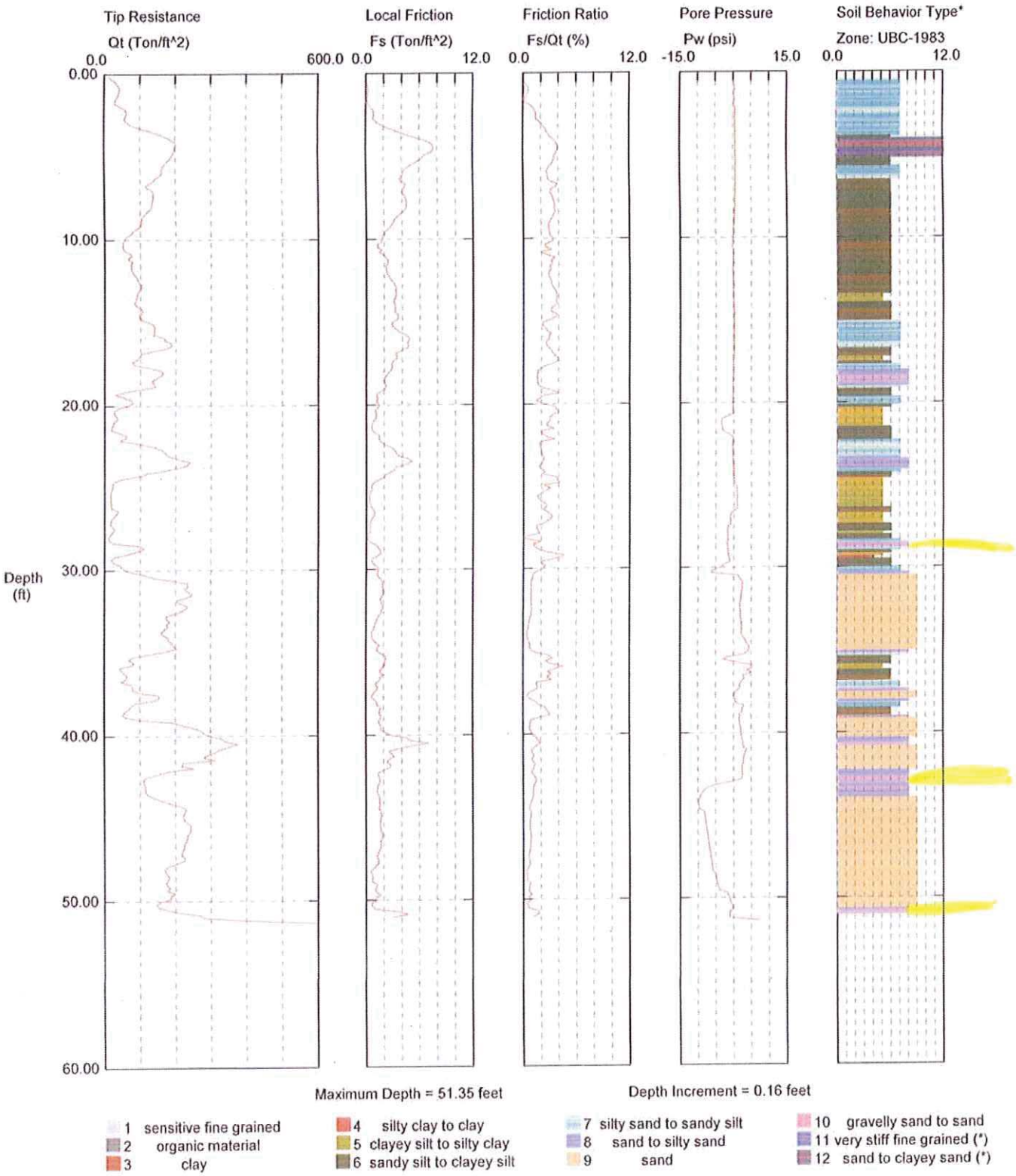


*Soil behavior type and SPT based on data from UBC-1983

TEST AMERICA

Operator: B. BUCKNAM
Sounding: CPT248
Cone Used: 510

CPT Date/Time: 03-10-04 13:39
Location: ct-5
Job Number: 0

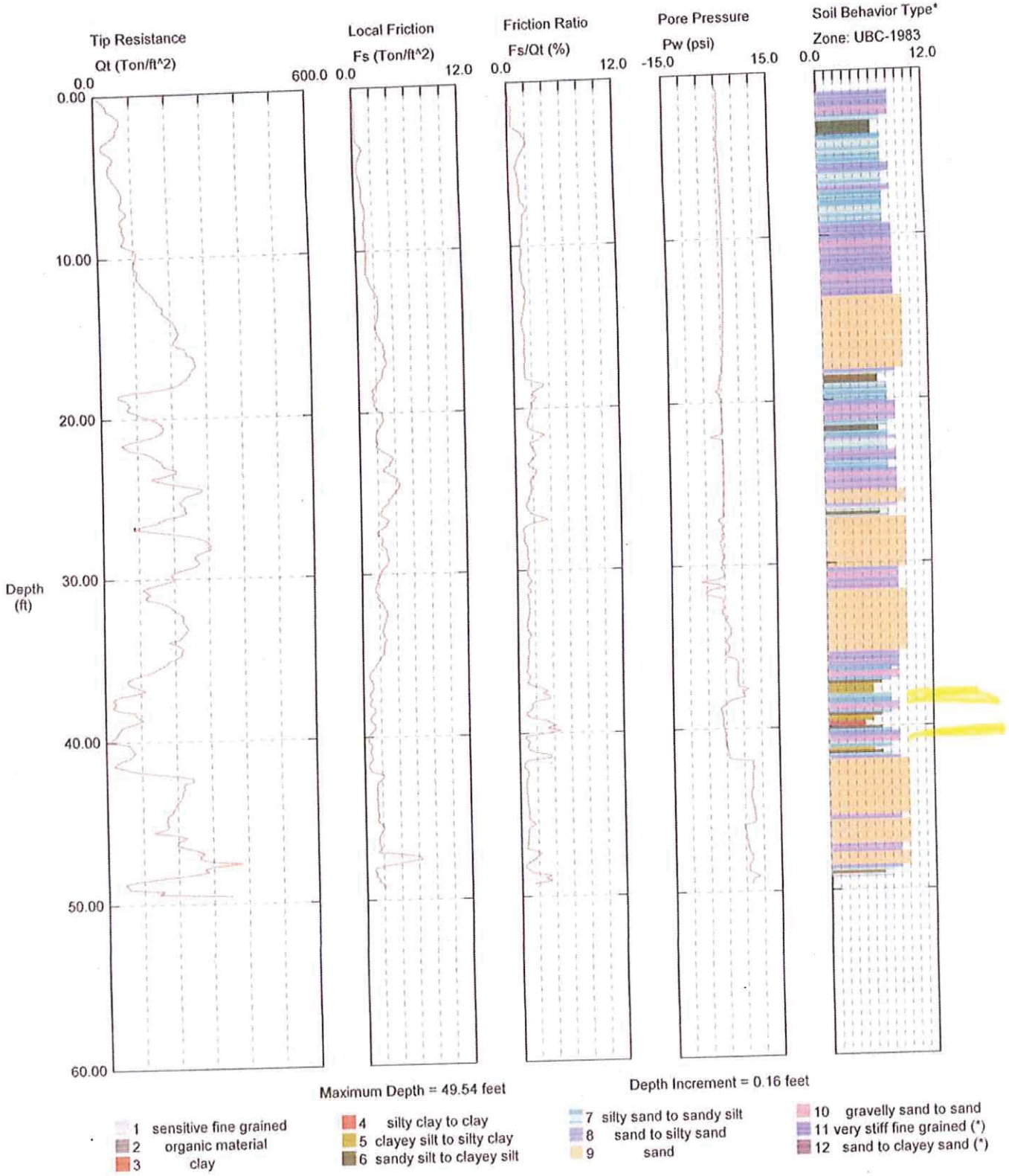


*Soil behavior type and SPT based on data from UBC-1983

TEST AMERICA

Operator: B. BUCKNAM
Sounding: CPT249
Cone Used: 510

CPT Date/Time: 03-10-04 14:45
Location: cpt-6
Job Number: 0



BORING HS B1

CLIENT: HKS	**PSI PROJECT NO.:** 056-65059
PROJECT: Temecula Hospital	**BORING TYPE:** Hollowstem Augers
LOCATION: Temecula, California	**ELEVATION:**
DATE DRILLED: 06/26/2006	**LOGGED BY:** JDF

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Depth [ft]	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows / 6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
	Surface: **Silty SAND (SM),** brown, dry to slightly moist, dried vegetation, shrubs and trees.					
5	Bulk: **Silty SAND (SM),** brown, slightly moist, fine grained sand.		7.3	108.5		
10	**Silty SAND (SM),** brown, slightly moist, medium dense, fine grained sand, highly micaceous.	10 12 15	14.5	106.0		
15						
20	**SAND (SW),** light brown, slightly moist, medium dense, fine to coarse grained sand, less medium grained sand than fine and coarse grained sand.	10 12 12				
25	▽					
30	**Silty SAND (SM),** brown, wet, dense, coarse grained sand, some fine and medium grained sand.	12 15 18				
	Total Depth: 33 Feet Groundwater was encountered at approximately 28 Feet below ground surface at the time of drilling. Boring was backfilled upon completion.					

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FIGURE NO.

BORING/TEST PIT LOG 056-65059 BORING LOGS.GPJ PSI LONG BEACH.GDT 12/15/08

BORING HS B2

CLIENT: HKS	**PSI PROJECT NO.:** 056-65059
PROJECT: Temecula Hospital	**BORING TYPE:** Hollowstem Augers
LOCATION: Temecula, California	**ELEVATION:**
DATE DRILLED: 06/26/2006	**LOGGED BY:** JDF

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Depth [ft]	Graphic Log	Sample Type	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows / 6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
			Surface: **Silty SAND (SM),** brown, dry to slightly moist, dried vegetation, shrubs and trees.					
5					10.5	106.3		
10			**SAND (SP),** light brown, slightly moist, medium dense, fine to medium grained sand.	6 8 12	12.2	104.1		
15								
20			**Silty SAND (SM),** grey brown, moist, medium dense, fine grained sand, trace iron oxidation.	8 8 12				
25		▽						
30			**SAND (SW),** light brown, wet, dense, fine to coarse grained sand, micaceous.	12 12 18				
			Total Depth: 31 1/2 Feet Groundwater was encountered at approximately 25 Feet below ground surface at the time of drilling. Boring was backfilled upon completion.					

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FIGURE NO.

BORING HS B3

CLIENT: HKS	**PSI PROJECT NO.:** 056-65059
PROJECT: Temecula Hospital	**BORING TYPE:** Hollowstem Augers
LOCATION: Temecula, California	**ELEVATION:**
DATE DRILLED: 06/26/2006	**LOGGED BY:** JDF

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Depth [ft]	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows / 6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
	Surface: **Silty SAND (SM),** brown, dry to slightly moist, dried vegetation, shrubs and trees.					
5			8.3	113.0		
10	**Silty SAND (SM),** brown, slightly moist, medium dense, fine to coarse grained sand, mostly fine grained sand.	14 16 21	14.2	115.1		
15						
20	**SAND (SP),** light orange brown, slightly moist, medium dense, fine to medium grained sand, micaceous.	8 9 11				
25	▽					
30	**SAND (SW),** light brown, moist, medium dense, fine to coarse grained sand, transitions into **SILT (ML),** brown, moist, very stiff.	10 11 12				
	Total Depth: 33 Feet Groundwater was encountered at approximately 28 Feet below ground surface at the time of drilling. Boring was backfilled upon completion.					

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FIGURE NO.

BORING/TEST PIT LOG 056-65059 BORING LOGS.GPJ PSI LONG BEACH.GDT 12/15/08

BORING HS B4

CLIENT: HKS	**PSI PROJECT NO.:** 056-65059
PROJECT: Temecula Hospital	**BORING TYPE:** Hollowstem Augers
LOCATION: Temecula, California	**ELEVATION:**
DATE DRILLED: 06/26/2006	**LOGGED BY:** JDF

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Depth [ft]	Graphic Log	Sample Type	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows / 6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
			Surface: **Silty SAND (SM),** brown, dry to slightly moist, dried vegetation, shrubs and trees.					
5					9.3	126.4		
10			**SAND (SW),** light brown, slightly moist, medium dense, fine to coarse grained sand, slightly micaceous.	6 7 8				
15								
20			**SAND (SW),** light brown, slightly moist, medium dense, fine to coarse grained sand, slightly micaceous.	12 12 18				
25			▽					
30			**Silty SAND (SM),** grey, wet, fine to coarse grained sand, highly micaceous.	10 13 16				
			Total Depth: 31 1/2 Feet Groundwater was encountered at approximately 28 Feet below ground surface at the time of drilling. Boring was backfilled upon completion.					

BORING/TEST PIT LOG 056-65059 BORING LOGS.GPJ PSI LONG BEACH.GDT 12/15/08

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FIGURE NO.

BORING MR-B1

CLIENT: HKS	**PSI PROJECT NO.:** 056-65059
PROJECT: Temecula Hospital	**BORING TYPE:** Rotary Wash
LOCATION: Temecula, California	**ELEVATION:**
DATE DRILLED: 06/15/2006	**LOGGED BY:** SJ & SM

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Depth [ft]	Graphic Log	Sample Type	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows / 6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
			Surface: **Silty SAND (SM),** brown, dry to slightly moist, fine to coarse grained sand, dried vegetation, shrubs and trees.					
5			**Silty SAND (SM),** dark grey, slightly moist, very loose, fine to medium grained sand, some coarse grained sand, transitions into **SAND (SP),** grey brown, slightly moist, very loose, fine to medium grained sand, slightly micaceous, slightly silty.	5 6				
10			**SAND (SP),** grey, moist, very loose, fine to medium grained sand, some coarse grained sand, slightly micaceous.	4 4				
15			**SAND (SP/SW),** brown, very moist, dense, medium to coarse grained sand, some very coarse grained sand, estimated 5 to 10% gravels to 1/8", transitions into **Silty CLAY (CL),** dark grey, very moist, hard.	10 18 15				
20			**SAND (SP/SW),** brown grey, wet, medium dense, medium to coarse grained sand, slightly silty.	8 14 9				
			▽					
25			**Silty SAND (SM),** dark grey, wet, dense, medium to coarse grained sand, slightly micaceous.	5 14 16				
30			**SAND (SP/SW),** grey, wet, dense, coarse to very coarse grained sand, estimated 5% fine gravels to 1/8".	14 16 18				
35			**SAND (SP/SW),** dark grey, wet, dense, coarse to very coarse grained sand, estimated 10 to 15% fine gravels to 1/8", transitions into **Clayey Sandy SILT (ML),** dark grey, wet, hard, slightly micaceous, medium to coarse grained sand.	10 15 17				

BORING/TEST PIT LOG 056-65059 BORING LOGS.GPJ PSI LONG BEACH.GDT 12/15/08

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FIGURE NO.

BORING MR-B1

CLIENT: HKS	**PSI PROJECT NO.:** 056-65059
PROJECT: Temecula Hospital	**BORING TYPE:** Rotary Wash
LOCATION: Temecula, California	**ELEVATION:**
DATE DRILLED: 06/15/2006	**LOGGED BY:** SJ & SM

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Depth [ft]	Graphic Log	Sample Type	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows / 6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
			Silty SAND (SM), grey brown, wet, dense, coarse to very coarse grained sand, estimated 30 to 50% gravels to 1/2".	12 15 18				
45			**SAND (SP/SW),** grey brown, wet, very dense, coarse to very coarse grained sand, transitions into **GRAVEL (GP),** grey, wet, very dense, fine gravels to 1/2", transitions into **SAND (SP/SW),** grey brown, wet, very dense, clean to slightly silty, medium to coarse grained sand, some very coarse grained sand at the tip.	15 25 27				
50			**Gravelly SAND (SP/SW),** light grey brown, wet, very dense, coarse to very coarse grained sand, trace medium grained sand, estimated 30 to 40% gravels to 1/4".	26 50/3"				
55			**Sandy GRAVEL (GP),** light grey brown, wet, very dense, gravels to 1/4".	50/4"				
60			**Sandy GRAVEL (GP),** brown, wet, very dense, medium to coarse grained sand, gravels to 1/4", transitions into **Silty CLAY (CL),** brown, wet, hard, transitions into **Silty SAND (SM),** brown, very moist, medium to coarse grained sand, micaceous.	39 26 33/4"				
65			**SAND (SP/SW),** light brown, wet, very dense, medium to coarse grained sand, estimated 40 to 60% gravels 1/8" to 1/4", scattered pockets of silt.	50/4"				
70			**SAND (SP/SW),** light brown, wet, very dense, medium to coarse grained sand, estimated 30 to 40% gravels to 1/8".	50/3.75"				
			Total Depth: 70 1/3 Feet Groundwater was encountered at approximately 24 Feet below ground surface at the time of drilling. Boring was backfilled with grout upon completion.					

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FIGURE NO.

BORING/TEST PIT LOG 056-65059 BORING LOGS.GPJ PSI LONG BEACH.GDT 12/15/08

BORING MR-B2

CLIENT: HKS	**PSI PROJECT NO.:** 056-65059
PROJECT: Temecula Hospital	**BORING TYPE:** Rotary Wash
LOCATION: Temecula, California	**ELEVATION:**
DATE DRILLED: 06/15/2006	**LOGGED BY:** SJ & SM

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Depth [ft]	Graphic Log	Sample Type	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows / 6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
			Surface: **Silty SAND (SM),** brown, dry to slightly moist, fine to coarse grained sand, dried vegetation, shrubs and trees.					
5			**Silty SAND (SM),** dark brown, moist, loose, very fine to fine grained sand, some medium grained sand, micaceous, some slightly clayey fine sandy silt.	3 4				
10			**SAND (SP/SW),** light to medium grey, slightly moist, medium dense, medium to coarse grained sand, slightly micaceous, slightly silty, coarse to very coarse grained sand present in the shoe with an estimated 10 to 20% fine gravels to 3/16".	8 12				
15			**SAND (SP/SW),** light grey, very moist, dense, coarse to very coarse grained sand, some medium grained sand, estimated 10 to 20% fine gravels to 1/8".	12 16 17				
20			**Sandy GRAVEL (GP),** dark grey, moist, dense, coarse to very coarse grained sand, transitions into **SAND (SP),** brown and grey, very moist, dense, thinly laminated fine to medium grained sand, trace dark grey clayey silt at the tip.	6 17 20				
25			**SAND (SW),** dark grey, moist, dense, fine to coarse grained sand, transitions into **Silty SAND (SM),** medium to dark grey, very moist to wet, dense, fine to medium grained sand, some coarse grained sand, slightly micaceous.	10 19 12				
30			**SAND (SP/SW),** grey, very moist to wet, dense, coarse to very coarse grained sand, pockets of silt, slightly micaceous.	14 15 17				
35			**SAND (SP/SW),** dark grey, wet, dense, coarse to very coarse grained sand, slightly micaceous, transitions into **Silty SAND (SM),** grey, wet, dense, fine to medium grained sand, micaceous.	12 17 14				

BORING/TEST PIT LOG 056-65059 BORING LOGS.GPJ PSI LONG BEACH.GDT 12/15/08

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FIGURE NO.

BORING MR-B2

CLIENT: HKS	**PSI PROJECT NO.:** 056-65059
PROJECT: Temecula Hospital	**BORING TYPE:** Rotary Wash
LOCATION: Temecula, California	**ELEVATION:**
DATE DRILLED: 06/15/2006	**LOGGED BY:** SJ & SM

Standard Split Spoon | Shelby Tube | Water Level ATD | Modified California | Bulk Sample | Static Water Table

Depth [ft]	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows / 6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
	SAND (SP/SW), dark grey, wet, dense, coarse to very coarse grained sand.	14 16 16				
45	**SAND (SP/SW),** brown, wet, dense, coarse to very coarse grained sand, estimated 5 to 15% gravels to 1/4", transitions into **SILT (ML),** brown, wet, hard, slightly micaceous.	15 18 14				
50	**SAND (SP/SW),** grey and rusty brown, wet, very dense, coarse to very coarse grained sand, 2" thick iron oxidized horizon at the tip.	38 50/5"				
55	**Silty SAND (SM),** dark grey brown, slightly moist, very dense, fine to medium grained sand, micaceous, transitions into **Sandy SILT (ML),** dark grey, slightly moist, fine grained sand, transitions into **SAND (SP/SW),** brown, wet, medium to very coarse grained sand, slightly silty.	42 48/3"				
60	**SAND (SP/SW),** grey, wet, very dense, coarse to very coarse grained sand, estimated 10 to 20% gravels to 1/8".	50/4"				
65	**Sandy SILT (ML),** grey, moist, hard, slightly clayey, micaceous, transitions into **SAND (SP),** dark brown, moist, very dense, fine to medium grained sand, slightly silty, transitions into **Sandy SILT (ML),** grey, moist, hard, micaceous, slightly clayey.	55/6"				
70	**Sandy SILT (ML),** brown, moist, hard, slightly clayey, micaceous, transitions into **SAND (SP/SW),** brown grey, moist, very dense, medium to coarse grained sand, slightly silty.	30 53/6"				

Total Depth: 71 Feet
Groundwater was encountered at approximately 23 1/2 Feet below ground surface at the time of drilling.
Boring was backfilled with grout upon completion.

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FIGURE NO.

BORING/TEST PIT LOG 058-65059 BORING LOGS.GPJ PSI LONG BEACH.GDT 12/15/08

BORING MR-B3

CLIENT: HKS	**PSI PROJECT NO.:** 056-65059
PROJECT: Temecula Hospital	**BORING TYPE:** Rotary Wash
LOCATION: Temecula, California	**ELEVATION:**
DATE DRILLED: 06/15/2006	**LOGGED BY:** SJ & SM

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Depth [ft]	Graphic Log	Sample Type	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows / 6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
			Surface: **Silty SAND (SM),** grey brown, dry to slightly moist, fine to coarse grained sand, dried vegetation, shrubs and trees.					
5			**Silty SAND (SM),** dark grey brown, slightly moist, loose, fine grained sand, micaceous.	7 8				
10			**Silty SAND (SM),** dark brown, slightly moist, very loose, fine to medium grained sand, slighlty micaceous, less silt than lesser depths.	3 4				
15			**Silty Sandy CLAY (CL),** dark grey to brown, slightly moist to moist, stiff, fine to medium grained sand, common gravels to 1/4", transitions into **SAND (SP),** dark brown, very moist, very loose, fine to medium grained sand, slightly silty, micaceous.	4 5 5				
20			**Gravelly SAND (SP/SW),** light orange brown, wet, very dense, coarse to very coarse grained sand, clean to slightly silty.	17 34 27				
25			**Sandy GRAVEL (GP),** light to medium grey brown, wet, dense, coarse to very coarse grained sand, fine (1/4" to 3/8" gravel).	24 20 15				
30			▽ **Silty CLAY (CH),** dark brown, slightly moist, hard, transitions into **SAND (SP/SW),** grey, moist, coarse to very coarse grained sand, clean to slightly silty.	9 15 25				
35			**SAND (SP/SW),** brown, wet, very dense, medium to very coarse grained sand, clean to slightly silty, slightly micaceous, estimated 10 to 15% gravels to 1/8".	38 50/5.5"				

BORING/TEST PIT LOG 056-65059 BORING LOGS.GPJ PSI LONG BEACH.GDT 12/15/08

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FIGURE NO.

BORING MR-B3

CLIENT: HKS	**PSI PROJECT NO.:** 056-65059
PROJECT: Temecula Hospital	**BORING TYPE:** Rotary Wash
LOCATION: Temecula, California	**ELEVATION:**
DATE DRILLED: 06/15/2006	**LOGGED BY:** SJ & SM

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Depth [ft]	Graphic Log	Sample Type	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows / 6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
			SAND (SP/SW), brown, wet, very dense, medium to very coarse grained sand, clean to slightly silty, slightly micaceous, estimated 10 to 15% gravels to 1/8".	38 45 50/6"				
45			**SAND (SP/SW),** light brown, wet, very dense, medium to very coarse grained sand, slightly silty, slightly micaceous, estimated 30 to 40% gravels 3/16" to 1/4".	42 39 42				
50			**GRAVEL (GP),** brown, wet, very dense, gravels 1/8" to 3/8".	60/5"				
			Total Depth: 51 1/2 Feet Groundwater was encountered at approximately 31 Feet below ground surface at the time of drilling. Boring was backfilled with grout upon completion.					

BORING/TEST PIT LOG 056-65059 BORING LOGS.GPJ PSI LONG BEACH.GDT 12/15/08

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FIGURE NO.

BORING MR-B4

CLIENT: HKS	**PSI PROJECT NO.:** 056-65059
PROJECT: Temecula Hospital	**BORING TYPE:** Rotary Wash
LOCATION: Temecula, California	**ELEVATION:**
DATE DRILLED: 06/16/2006	**LOGGED BY:** SJ & SM

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Depth [ft]	Graphic Log	Sample Type	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows / 6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
			Surface: **Silty SAND (SM),** brown, dry to slightly moist, fine to coarse grained sand, dried vegetation, shrubs and trees.					
5			**Silty SAND (SM),** brown, slightly moist, loose, medium to coarse grained sand,	6 10				
10			**Sandy SILT (ML),** brown, moist, medium stiff, fine grained sand, micaceous.	7 8				
15			**Clayey SILT (ML),** dark brown, moist to very moist, very stiff, micaceous, transitions into **Silty SAND (SM),** medium to brown, wet, medium dense, very fine to fine grained sand, micaceous.	5 10 10				
20			**SAND (SP/SW),** grey brown, very moist, dense, medium to coarse grained sand, micaceous, transitions into **SAND (SP/SW),** light brown, very moist, dense, coarse to very coarse grained sand, estimated 10 to 20% fine gravels to 3/16".	16 22 26				
25			**Gravelly Silty SAND (SP/SW),** grey brown, moist, very dense, medium to coarse grained sand, slightly silty to silty, slightly micaceous, gravels from 1/4" to 1/2".	25 50/3"				
30			**Silty CLAY (CL),** dark grey brown, wet, hard, slightly sandy to sandy, fine to medium grained sand.	8 23 32				
35			**Silty CLAY (CL),** medium grey brown, wet, hard, some fine to medium grained sand. **SAND (SP/SW),** medium to dark grey brown, wet, very dense, medium to coarse grained sand, slightly silty to silty. ▽	23 32 50/3.5"				

BORING/TEST PIT LOG 056-65059 BORING LOGS.GPJ PSI LONG BEACH.GDT 12/15/08

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FIGURE NO.

BORING MR-B4

CLIENT: HKS	**PSI PROJECT NO.:** 056-65059
PROJECT: Temecula Hospital	**BORING TYPE:** Rotary Wash
LOCATION: Temecula, California	**ELEVATION:**
DATE DRILLED: 06/16/2006	**LOGGED BY:** SJ & SM

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Depth [ft]	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows / 6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
	Silty SAND (SM), grey brown, moist, dense, coarse to very coarse grained sand, estimated 20 to 30% gravels 1/8" to 1/4", slightly micaceous.	45 40/3.75"				
45	No recovery. **Gravelly SAND (SP/SW)**	46 52/5.75"				
50	**SAND (SP/SW),** light to medium brown, moist, very dense, coarse to very coarse grained sand, clean to slightly silty, slightly micaceous, estimated 20 to 30% gravels 1/8" to 3/16".	54/6"				
55	**SAND (SP/SW),** light to medium brown, moist, very dense, coarse to very coarse grained sand, slightly micaceous, estimated 20 to 30% gravels 1/8" to 3/16".	48 53/4.75"				
60	**SAND (SP/SW),** light brown, moist, very dense, medium to coarse grained sand, slightly silty, some gravels to 1/4", transitions into **SAND (SP/SW),** light orange brown, moist, very dense, estimated 20 to 30% gravels to 3/16".	55/5"				
65	**SAND (SP/SW),** light brown, moist, very dense, medium to coarse grained sand, slightly silty, some gravels to 1/4", transitions into **SAND (SP/SW),** light orange brown, moist, very dense, estimated 20 to 30% gravels to 3/16".	71/6"				
70	**SAND (SP/SW),** light brown, wet, very dense, medium to coarse grained sand, some fine gravels to 1/4".	75/6"				
	Total Depth: 70 1/2 Feet Groundwater was encountered at approximately 39 Feet below ground surface at the time of drilling. Boring was backfilled with grout upon completion.					

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FIGURE NO.

APPENDIX C

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geophysical services

SUSPENSION P & S VELOCITIES
AND Vs30 AT
PROPOSED TEMECULA HOSPITAL SITE,
BORING B-2

May 27, 2010
Report 10173-01

SUSPENSION P & S VELOCITIES
AND Vs30 AT
PROPOSED TEMECULA HOSPITAL SITE,
BORING B-2

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May 27, 2010
Report 10173-01

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APPENDIX B: OYO Suspension PS velocity logging system NIST traceable calibration

INTRODUCTION

OYO suspension PS velocity measurements were performed in one uncased boring at the proposed Temecula Hospital Site. Data acquisition was performed on May 18, 2010 by Robert Steller of GEOVision. Data analysis and report preparation were performed by Robert Steller and reviewed by John Diehl. The work was performed under subcontract with GeoDesign, Inc, with Chris Zadoorian as the point of contact for GeoDesign.

This report describes the field measurements, data analysis, and results of this work.

SCOPE OF WORK

This report presents the results of suspension velocity measurements in one uncased boring, as detailed below. The purpose of these studies was to supplement stratigraphic information obtained from GeoDesign's soil sampling program and to acquire shear wave velocities and compressional wave velocities as a function of depth, as well as to determine Vs30 for the site.

BORING DESIGNATION	DATE LOGGED	BORING DEPTH (FEET)	LOCATION
B-2	5/18/2010	114	NA

Table 1. Boring location and logging date

The OYO Model 170 Suspension Logging Recorder and Suspension Logging Probe were used to obtain in-situ horizontal shear and compressional wave velocity measurements at 1.64 ft intervals. The acquired data was analyzed and a profile of velocity versus depth was produced for both compressional and horizontally polarized shear waves.

A detailed reference for the velocity measurement techniques used in this study is:

> Guidelines for Determining Design Basis Ground Motions, Report TR-102293, Electric Power Research Institute, Palo Alto, California, November 1993, Sections 7 and 8.

INSTRUMENTATION

Suspension soil velocity measurements were performed using the Suspension PS Logging system, manufactured by OYO Corporation, and their subsidiary, Robertson Geologging. This system directly determines the average velocity of a 3.28 ft high segment of the soil column surrounding the boring of interest by measuring the elapsed time between arrivals of a wave propagating upward through the soil column. The receivers that detect the wave, and the source that generates the wave, are moved as a unit in the boring producing relatively constant amplitude signals at all depths.

The suspension system probe consists of a combined reversible polarity solenoid horizontal shear-wave source (S_H) and compressional-wave source (P), joined to two biaxial receivers by a flexible isolation cylinder, as shown in Figure 1. The separation of the two receivers is 3.28 ft, allowing average wave velocity in the region between the receivers to be determined by inversion of the wave travel time between the two receivers. The total length of the probe as used in this survey is 21 ft, with the center point of the receiver pair 12.1 ft above the bottom end of the probe. The probe receives control signals from, and sends the amplified receiver signals to, instrumentation on the surface via an armored 4 conductor cable. The cable is wound onto the drum of a winch and is used to support the probe. Cable travel is measured to provide probe depth data.

The entire probe is suspended in the boring by the cable, therefore, source motion is not coupled directly to the boring walls; rather, the source motion creates a horizontally propagating impulsive pressure wave in the fluid filling the boring and surrounding the source. This pressure wave is converted to P and S_H-waves in the surrounding soil and rock as it passes through the casing and grout annulus and impinges upon the wall of the boring. These waves propagate through the soil and rock surrounding the boring, in turn causing a pressure wave to be generated in the fluid surrounding the receivers as the soil waves pass their location. Separation of the P and S_H-waves at the receivers is performed using the following steps:

1. Orientation of the horizontal receivers is maintained parallel to the axis of the source, maximizing the amplitude of the recorded S_H-wave signals.
2. At each depth, S_H-wave signals are recorded with the source actuated in opposite directions, producing S_H-wave signals of opposite polarity, providing a characteristic S_H-wave signature distinct from the P-wave signal.
3. The 7.0 ft separation of source and receiver 1 permits the P-wave signal to pass and damp significantly before the slower S_H-wave signal arrives at the receiver. In faster soils or rock, the isolation cylinder is extended to allow greater separation of the P- and S_H-wave signals.
4. In saturated soils, the received P-wave signal is typically of much higher frequency than the received S_H-wave signal, permitting additional separation of the two signals by low pass filtering.
5. Direct arrival of the original pressure pulse in the fluid is not detected at the receivers because the wavelength of the pressure pulse in fluid is significantly greater than the dimension of the fluid annulus surrounding the probe (meter versus centimeter scale), preventing significant energy transmission through the fluid medium.

In operation, a distinct, repeatable pattern of impulses is generated at each depth as follows:

1. The source is fired in one direction producing dominantly horizontal shear with some vertical compression, and the signals from the horizontal receivers situated parallel to the axis of motion of the source are recorded.
2. The source is fired again in the opposite direction and the horizontal receiver signals are recorded.
3. The source is fired again and the vertical receiver signals are recorded. The repeated source pattern facilitates the picking of the P and S_H-wave arrivals; reversal of the source changes the polarity of the S_H-wave pattern but not the P-wave pattern.

The data from each receiver during each source activation is recorded as a different channel on the recording system. The recorder has six channels (two simultaneous recording channels), each with a 16 bit 1024 sample record. The recorded data is displayed on the controlling computer display. Data is stored on disk for further processing. Up to 8 sampling sequences can be summed to improve the signal to noise ratio of the signals.

Review of the displayed data on the display allows the operator to set the gains, filters, delay time, pulse length (energy), sample rate, and summing number to optimize the quality of the data before recording. Verification of the calibration of the recorder is performed every twelve months using a NIST traceable frequency source and counter, as outlined in Appendix B.

MEASUREMENT PROCEDURES

The boring was logged uncased, filled with bentonite based drilling mud. The suspension probe was positioned with the mid-point of the receiver spacing at grade, and the mechanical and electronic depth counters were set to zero. The probe was lowered to the bottom of the boring, stopping at 1.64 ft intervals to collect data, as summarized below.

At each measurement depth the measurement sequence of two opposite horizontal records and one vertical record was performed, and the gains were adjusted as required. The data from each depth was checked and recorded on disk before moving to the next depth.

BORING NUMBER	RUN NUMBER	DEPTH RANGE (FEET)	DEPTH AS DRILLED (FEET)	LOST TO SLOUGH (FEET)	SAMPLE INTERVAL (FEET)	DATE LOGGED
B-2	1	1.6 – 101.7	115.0	1.2	1.64	5/18/2010

Table 2. Logging dates and depth ranges

DATA ANALYSIS

The recorded digital records were analyzed to locate the first minima on the vertical axis records, indicating the arrival of P-wave energy. The difference in travel time between receiver 1 and receiver 2 (R1-R2) arrivals are used to calculate the P-wave velocity for that 3.28 ft segment of the soil column. When observable, P-wave arrivals on the horizontal axis records are used to verify the velocities determined from the vertical axis data.

The P-wave velocity calculated from the travel time over the 7.0 ft interval from source to receiver 1 (S-R1) is calculated and plotted for quality assurance of the velocity derived from the travel time between receivers. During analysis, the depth values as recorded are increased by 5.15 ft to correspond to the mid-point of the 7.0 ft S-R1 interval, as illustrated in Figure 1. Travel times are obtained by picking the first break of the P-wave signal at receiver 1 and subtracting 0.3 milliseconds, the calculated and experimentally verified delay from source trigger pulse (beginning of record) to source impact. This delay corresponds to the duration of acceleration of the solenoid before impact.

The recorded digital records are studied to establish the presence of clear S_H-wave pulses, as indicated by the presence of opposite polarity pulses on each pair of horizontal records. Ideally, the S_H-wave signals from the 'normal' and 'reverse' source pulses are very nearly inverted images of each other. Digital FFT - IFFT lowpass filtering was used to remove the higher frequency P-wave signal from the S_H-wave signal. Different filter cutoffs are used to separate P- and S_H-waves at different depths, ranging from 500 Hz in the slowest zones to 2000 Hz in the regions of highest velocity. At each depth, the filter frequency is selected to be at least twice the fundamental frequency of the S_H-wave signal being filtered.

Generally, the first maxima were picked for the 'normal' signals and the first minima for the 'reverse' signals, although other points on the waveform were used if the first pulse was distorted. The absolute arrival time of the 'normal' and 'reverse' signals may vary by +/- 0.2 milliseconds, due to differences in the actuation time of the solenoid source caused by constant mechanical bias in the source or by boring inclination. This variation does not affect the R1-R2 velocity

determinations, as the differential time is measured between arrivals of waves created by the same source actuation. The final velocity value is the average of the values obtained from the 'normal' and 'reverse' source actuations.

As with the P-wave data, S_H-wave velocity calculated from the travel time over the 7.0 ft interval from source to receiver 1 is calculated and plotted for verification of the velocity derived from the travel time between receivers. During analysis, the depth values are increased by 5.15 ft to correspond to the mid-point of the 7.0 ft S-R1 interval. Travel times are obtained by picking the first break of the S_H-wave signal at the near receiver and subtracting 0.3 milliseconds, the calculated and experimentally verified delay from the beginning of the record at the source trigger pulse to source impact.

Figure 2 shows an example of R1 - R2 measurements on a filtered sample suspension. In Figure 2, the time difference over the 3.28 ft interval of 2.46 milliseconds for the horizontal signals is equivalent to an S_H-wave velocity of 1334 ft/sec. Final S_H-wave velocity is the average of the horizontal normal and horizontal reverse (HR) signals. Whenever possible, time differences were determined from several phase points on the S_H-waveform records to verify the data obtained from the first arrival of the S_H-wave pulse. Figure 3 displays the same record before filtering of the S_H-waveform record with a 2000 Hz FFT - IFFT digital lowpass filter, illustrating the presence of higher frequency P-wave energy at the beginning of the record, and distortion of the lower frequency S_H-wave by residual P-wave signal.

Vs30 was calculated by summing the calculated travel times over each 1.64 ft interval from the surface to a depth of 98.4ft (30.0 m).

RESULTS

Suspension P- and S_H-wave velocities are plotted with the calculated Vs30 of 304 m/sec (1000 ft/sec) in Figure 4. The calculated suspension travel time curves are presented with Vs30 in Figure 5. Tabulated measurement depths, pick times and velocities are presented in Table 3.

Calibration procedures and records for the measurement system are presented in Appendix B.

SUMMARY

Discussion of Suspension Results

Suspension PS velocity data are ideally collected in an uncased fluid filled boring, drilled with rotary mud (rotary wash) methods, as this boring was.

Suspension PS velocity data quality is judged based upon 5 criteria:

1. Consistent data between receiver to receiver (R1 – R2) and source to receiver (S – R1) data.
2. Consistent relationship between P-wave and S_H -wave (excluding transition to saturated soils)
3. Consistency between data from adjacent depth intervals.
4. Clarity of P-wave and S_H-wave onset, as well as damping of later oscillations.
5. Consistency of profile between adjacent borings, if available.

These data show excellent correlation between R1 – R2 and S – R1 data, as well as excellent correlation between P-wave and S_H-wave velocities. No adjacent borings were logged. P-wave and S_H-wave onsets are generally clear, and later oscillations are well damped. These are excellent quality velocity data.

Below 40.0 ft, the velocity profile is indicative of firm soil or weathered rock. P-wave velocities rise above 5000 ft/sec (1500 m/sec) at a depth of 38 ft, indicating water table at this depth..

Discussion of Vs30

Vs30 for this site from 0 to 98.3 ft (30.0 m) was calculated at 1000 ft/sec (304 m/sec), classifying it as a NEHRP site class D.

Quality Assurance

These velocity measurements were performed using industry-standard or better methods for both measurements and analyses. All work was performed under GEOVision quality assurance procedures, which include:

- Use of NIST-traceable calibrations, where applicable, for field and laboratory instrumentation
- Use of standard field data logs
- Use of independent verification of data by comparison of receiver-to-receiver and source-to-receiver velocities
- Independent review of calculations and results by a registered professional engineer, geologist, or geophysicist.

Data Reliability

P- and S_H-wave velocity measurement using the Suspension Method gives average velocities over a 3.28 ft interval of depth. This high resolution results in the scatter of values shown in the graphs. Individual measurements are very reliable with estimated precision of +/- 5%. Standardized field procedures and quality assurance checks contribute to the reliability of these data.

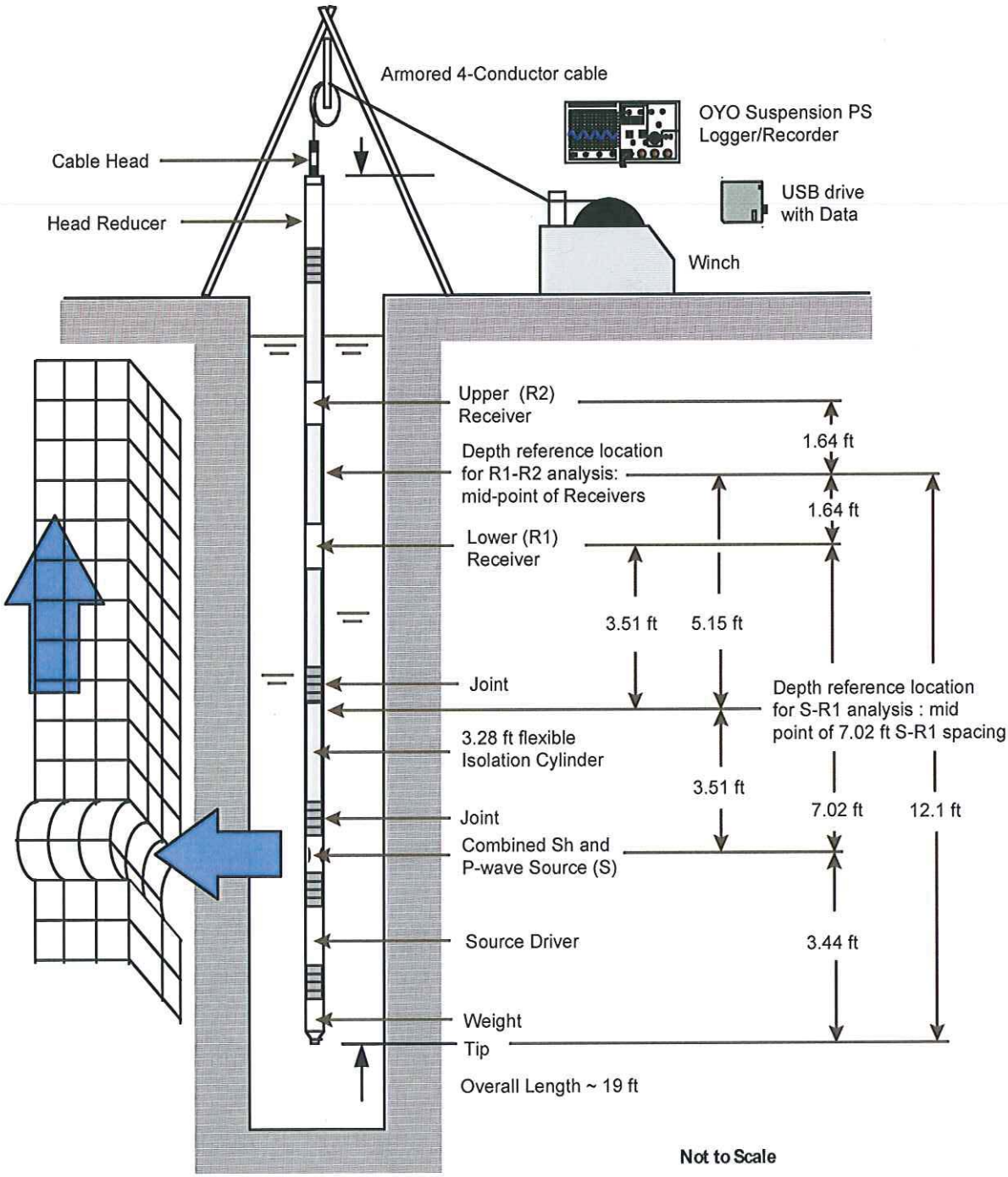


Figure 1. Concept illustration of P-S logging system

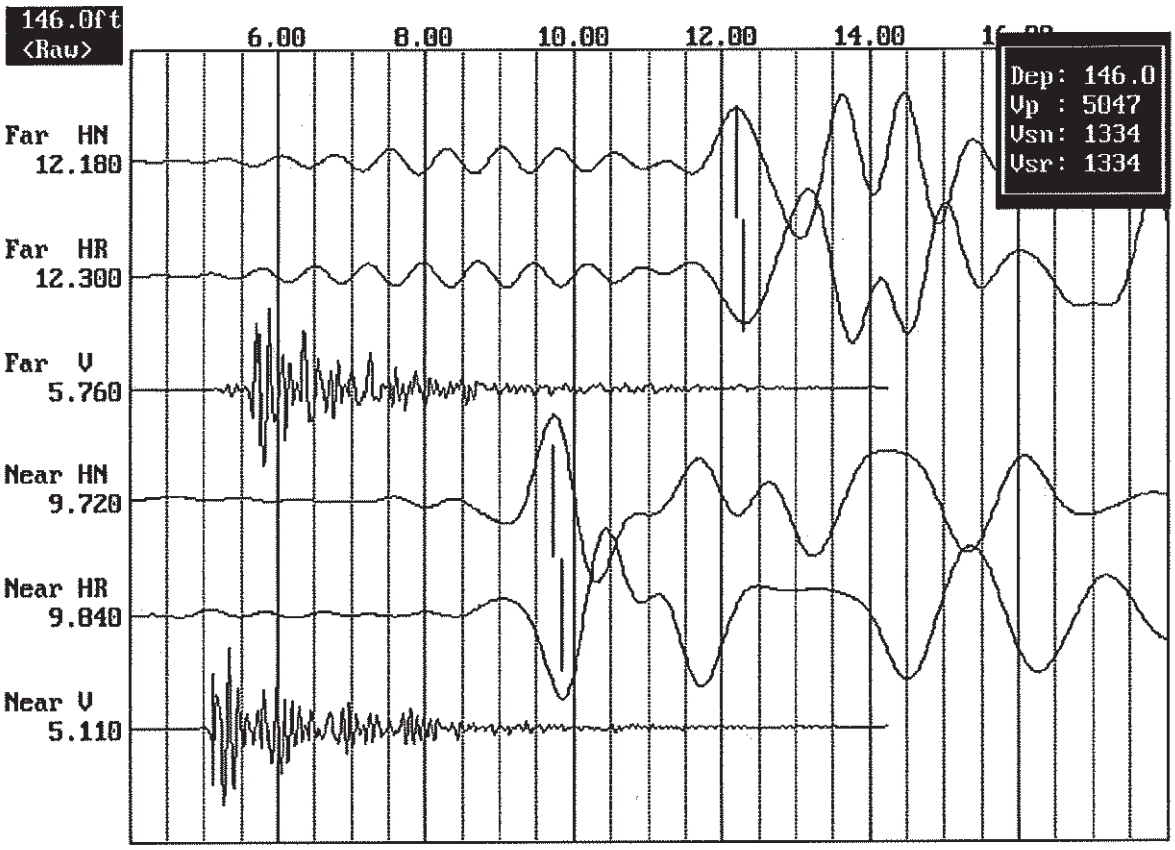


Figure 2. Filtered (2000 Hz lowpass) sample suspension record

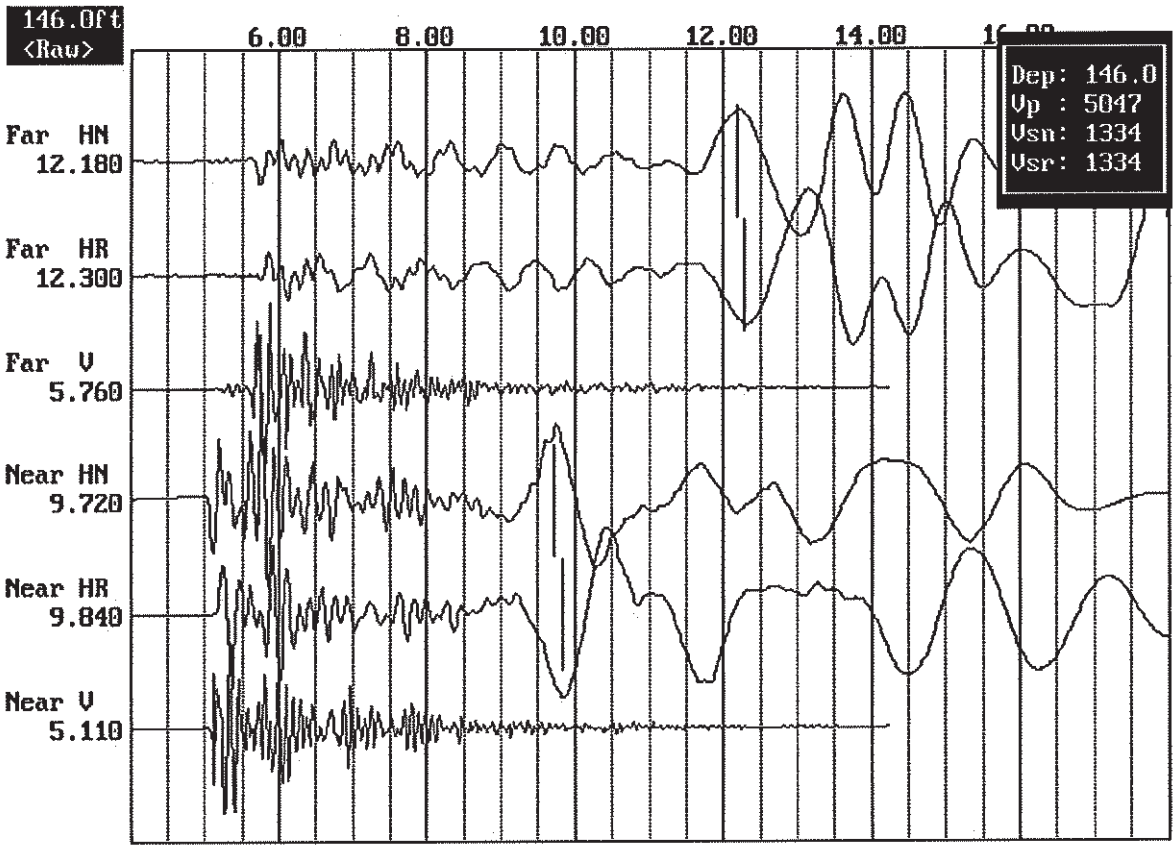


Figure 3. Unfiltered sample suspension record

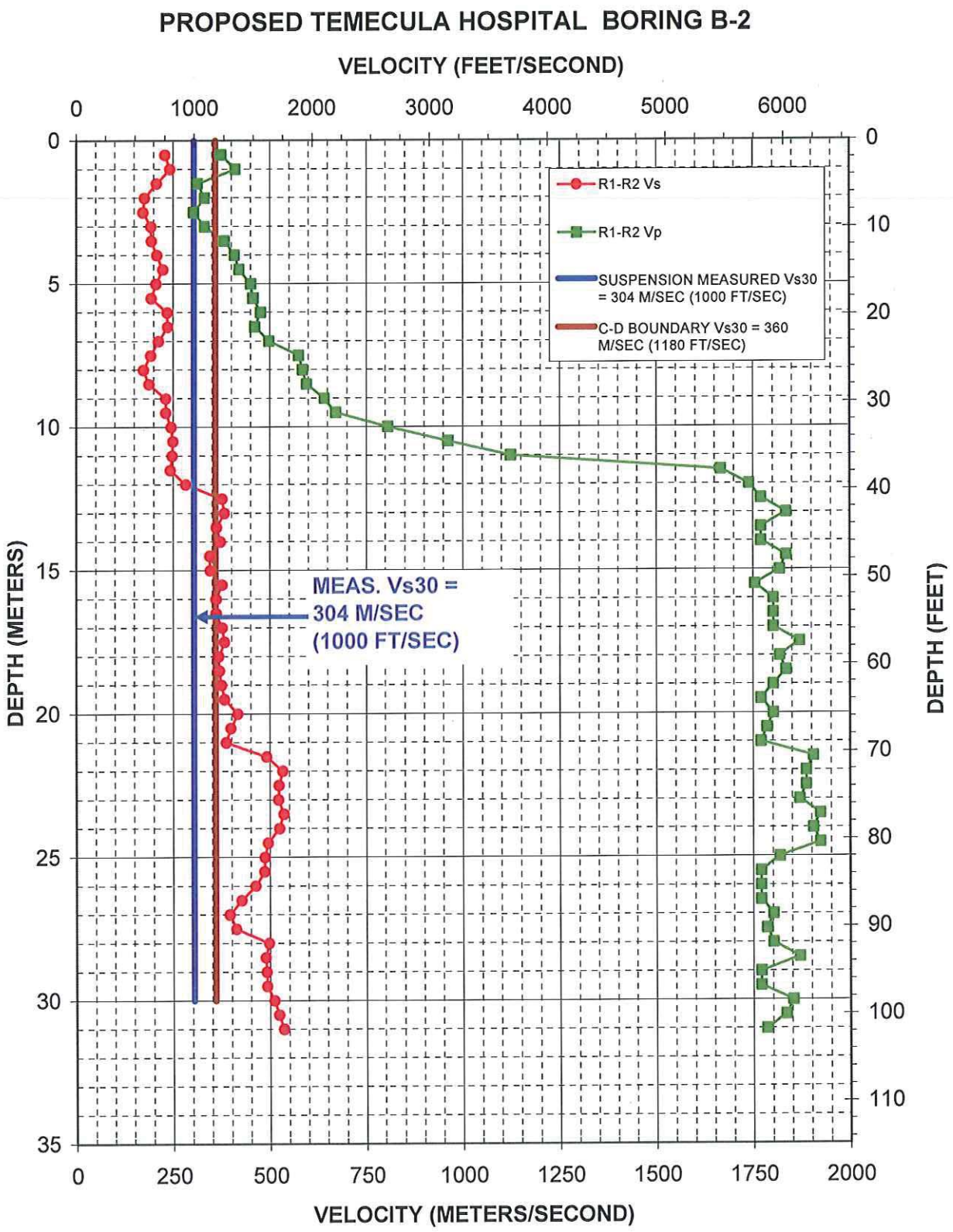


Figure 4. Boring B-2, Suspension P- and S_H-wave Velocities with Vs30 values

Depth		Velocity			
(m)	(feet)	$V\text{-}S_H$ (m/sec)	V-P (m/sec)	$V\text{-}S_H$ (ft/sec)	V-P (ft/sec)
0.5	1.6	230	373	754	1224
1.0	3.3	242	410	795	1345
1.5	4.9	208	313	684	1025
2.0	6.6	178	331	583	1086
2.5	8.2	174	303	571	994
3.0	9.8	194	331	637	1086
3.5	11.5	195	382	640	1252
4.0	13.1	209	408	686	1339
4.5	14.8	225	420	737	1379
5.0	16.4	207	450	679	1478
5.5	18.0	195	457	640	1498
6.0	19.7	235	476	772	1562
6.5	21.3	237	461	777	1512
7.0	23.0	213	498	700	1632
7.5	24.6	193	575	635	1886
8.0	26.2	175	585	575	1919
8.5	27.9	189	595	620	1953
9.0	29.5	232	641	761	2103
9.5	31.2	232	671	761	2202
10.0	32.8	246	806	806	2646
10.5	34.4	250	962	820	3155
11.0	36.1	248	1124	814	3686
11.5	37.7	243	1667	798	5468
12.0	39.4	283	1739	929	5706
12.5	41.0	376	1770	1233	5807
13.0	42.7	382	1835	1252	6020
13.5	44.3	362	1770	1189	5807
14.0	45.9	372	1770	1220	5807
14.5	47.6	345	1835	1131	6020
15.0	49.2	346	1818	1135	5965
15.5	50.9	376	1754	1233	5756
16.0	52.5	361	1802	1184	5911
16.5	54.1	361	1802	1184	5911
17.0	55.8	376	1802	1233	5911
17.5	57.4	382	1869	1252	6132
18.0	59.1	368	1818	1206	5965
18.5	60.7	369	1835	1211	6020
19.0	62.3	375	1802	1229	5911
19.5	64.0	382	1770	1252	5807
20.0	65.6	417	1802	1367	5911
20.5	67.3	398	1786	1307	5859
21.0	68.9	386	1770	1267	5807
21.5	70.5	491	1905	1612	6249
22.0	72.2	533	1887	1750	6190
22.5	73.8	524	1887	1718	6190
23.0	75.5	522	1869	1713	6132
23.5	77.1	536	1923	1759	6309
24.0	78.7	525	1905	1722	6249
24.5	80.4	495	1923	1624	6309
25.0	82.0	487	1818	1597	5965

Table 3. Boring B-2, Suspension R1-R2 depth, pick times, and velocities

Depth		Velocity			
(m)	(feet)	V-S_H (m/sec)	V-P (m/sec)	V-S_H (ft/sec)	V-P (ft/sec)
25.5	83.7	485	1770	1593	5807
26.0	85.3	463	1770	1519	5807
26.5	86.9	426	1770	1399	5807
27.0	88.6	395	1802	1297	5911
27.5	90.2	412	1786	1353	5859
28.0	91.9	498	1802	1632	5911
28.5	93.5	489	1869	1604	6132
29.0	95.1	491	1770	1612	5807
29.5	96.8	493	1770	1616	5807
30.0	98.4	512	1852	1678	6076
30.5	100.1	524	1835	1718	6020
31.0	101.7	536	1786	1759	5859

Table 3, continued. Boring B-2, Suspension R1-R2 depth, pick times, and velocities

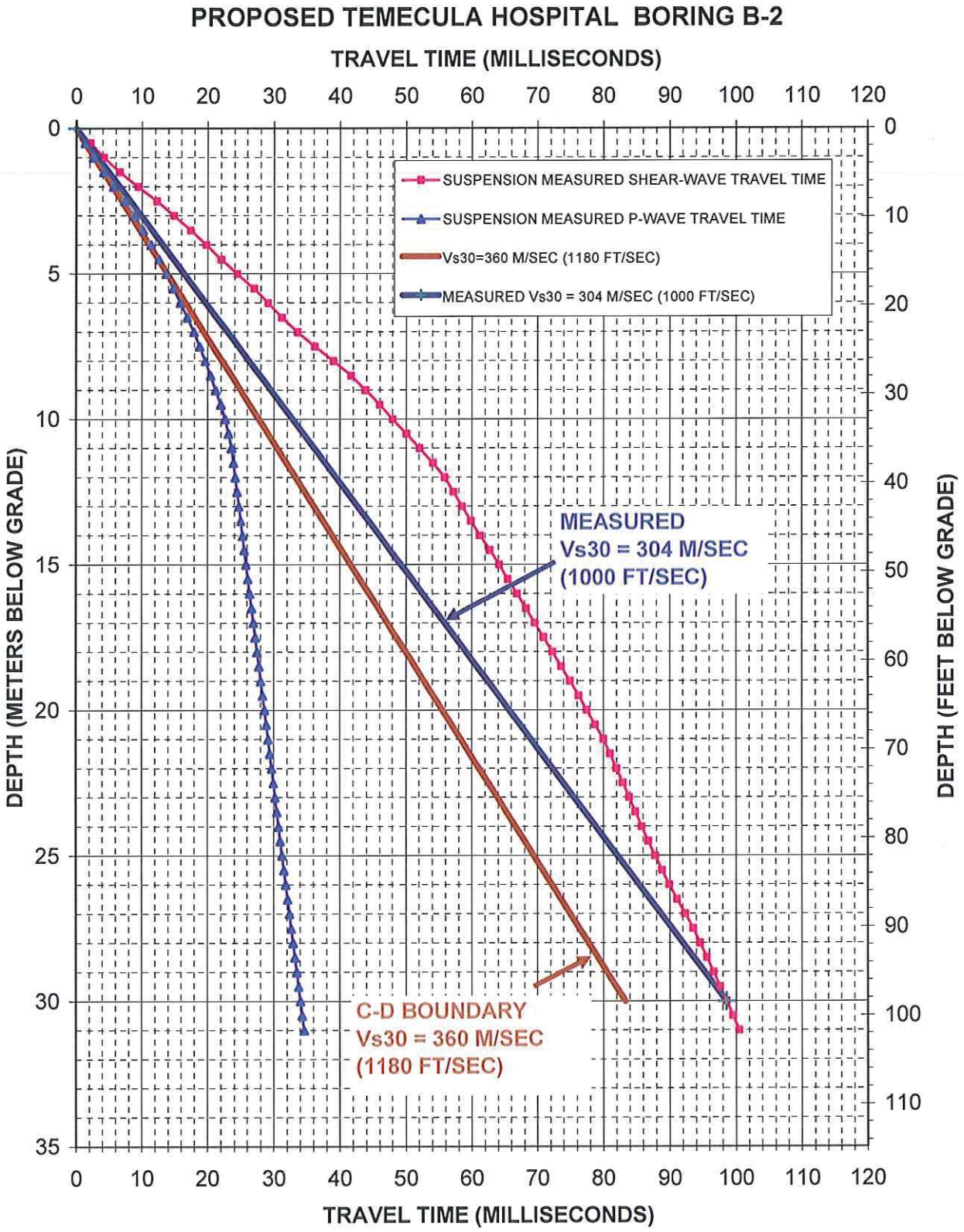


Figure 5. Boring B-2, Suspension P- and S_H-wave travel times with Vs30 values

APPENDIX A

SUSPENSION VELOCITY MEASUREMENT QUALITY ASSURANCE SUSPENSION SOURCE TO RECEIVER ANALYSIS RESULTS

APPENDIX A

SUSPENSION VELOCITY MEASUREMENT QUALITY ASSURANCE SUSPENSION SOURCE TO RECEIVER ANALYSIS RESULTS

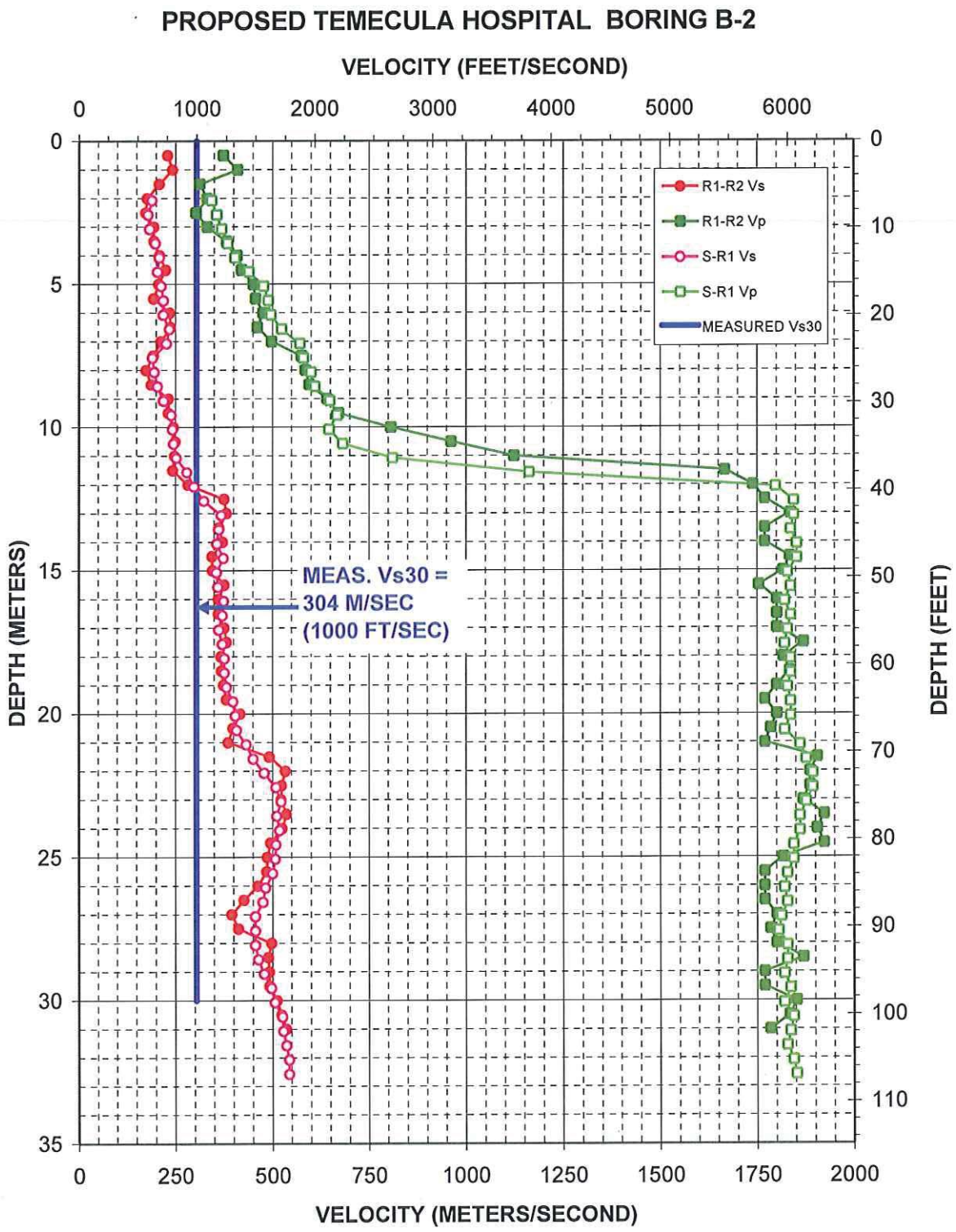


Figure A-1. Boring B-9, R1 - R2 high resolution analysis and S-R1 quality assurance analysis P- and S_H-wave data

Depth (meters)	Velocity V-S_H (m/sec)	Velocity V-p (m/sec)	Depth (feet)	Velocity V- S_H (ft/sec)	Velocity V-p (ft/sec)
2.1	190	342	6.79	622	1123
2.6	180	356	8.43	591	1168
3.1	184	368	10.07	604	1208
3.6	199	384	11.71	651	1261
4.1	208	403	13.35	683	1322
4.6	204	439	14.99	670	1442
5.1	213	477	16.63	700	1564
5.6	219	489	18.27	719	1603
6.1	219	495	19.91	719	1625
6.6	234	523	21.56	769	1717
7.1	227	571	23.20	745	1872
7.6	191	580	24.84	627	1903
8.1	196	599	26.48	642	1967
8.6	204	610	28.12	669	2000
9.1	219	648	29.76	720	2128
9.6	239	667	31.40	784	2187
10.1	242	647	33.04	795	2121
10.6	246	682	34.68	806	2236
11.1	253	811	36.32	829	2659
11.6	280	1163	37.96	918	3816
12.1	298	1798	39.60	979	5900
12.6	324	1845	41.24	1062	6053
13.1	368	1845	42.88	1208	6053
13.6	362	1837	44.52	1188	6027
14.1	357	1853	46.16	1172	6079
14.6	373	1853	47.80	1225	6079
15.1	356	1829	49.44	1168	6001
15.6	360	1837	51.08	1180	6027
16.1	375	1821	52.72	1230	5975
16.6	371	1837	54.36	1217	6027
17.1	362	1829	56.00	1188	6001
17.6	371	1821	57.64	1217	5975
18.1	376	1837	59.28	1234	6027
18.6	376	1837	60.93	1234	6027
19.1	381	1829	62.57	1252	6001
19.6	399	1837	64.21	1307	6027
20.1	405	1837	65.85	1327	6027
20.6	408	1821	67.49	1337	5975
21.1	432	1861	69.13	1418	6105
21.6	451	1877	70.77	1478	6159
22.1	479	1894	72.41	1571	6213
22.6	508	1894	74.05	1668	6213
23.1	522	1877	75.69	1712	6159
23.6	511	1861	77.33	1676	6105
24.1	518	1861	78.97	1700	6105
24.6	508	1845	80.61	1668	6053
25.1	507	1845	82.25	1664	6053
25.6	500	1829	83.89	1640	6001
26.1	482	1821	85.53	1581	5975
26.6	476	1829	87.17	1560	6001
27.1	456	1814	88.81	1497	5950
27.6	456	1806	90.45	1497	5925
28.1	456	1829	92.09	1497	6001
28.6	464	1829	93.73	1523	6001
29.1	479	1821	95.37	1571	5975
29.6	497	1837	97.01	1629	6027
30.1	506	1821	98.65	1660	5975
30.6	526	1845	100.30	1725	6053
31.1	528	1837	101.94	1734	6027
31.6	536	1829	103.58	1760	6001
32.1	543	1845	105.22	1782	6053
32.6	543	1853	106.86	1782	6079

Table A-1. Boring B-9, S - R1 quality assurance analysis P- and S_H-wave data

APPENDIX B

OYO 170 VELOCITY LOGGING SYSTEM

NIST TRACEABLE

CALIBRATION PROCEDURE

GEOVision SUSPENSION PS SEISMIC LOGGER/RECORDER

CALIBRATION PROCEDURE

Reviewed 7/21/08

Objective

The timing/sampling accuracy of seismic recorders or data loggers is required for several GEOVision field procedures including Seismic Refraction, Downhole P-S Seismic Velocity Logging, and Suspension P-S Seismic Velocity Logging. This procedure describes the method for measuring the timing accuracy of a seismic data logger, such as the OYO Model 170 or OYO/Robertson Model 3403. The objective of this procedure is to verify that the timing accuracy of the recorder is accurate to within 1%.

Frequency of Calibration

The calibration of each GEOVision seismic data logger is twelve (12) months. In the case of rented seismic logger/recorders, calibration must be performed prior to use.

Test Equipment Required

The following equipment is required. Item #2 must have current NIST traceable calibration.

1. Function generator, Krohn Hite 5400B or equivalent
2. Frequency counter, HP 5315A or equivalent
3. Test cables, from item 1 to item 2, and from item 1 to subject data logger.

Procedure

This procedure is designed to be performed using the accompanying Suspension P-S Seismic Logger/Recorder Calibration Data Form with the same revision number. All data must be entered and the procedure signed by the technician performing the test.

1. Record all identification data on the form provided.
2. Connect function generator to data logger (such as OYO Model 170) using test cable
3. Connect the function generator to the frequency counter using test cable.
4. Set signal generator to target frequency specified on data form, 0.25 volt (amplitude is approximate, modify as necessary to yield less than full scale waveforms on

logger display) peak sine wave. Verify frequency using the counter and note actual frequency on the data form.

5. Set data logger to file length specified on data form and record a data file to disk. Note file name on data form.

6. Measure the duration of 9 complete sine wave cycles on the data file. This measurement must be made using the analysis program PSLOG.EXE version 1.00, and saved as a .sps pick file. Note the duration in milliseconds in the spaces provided on the data form. Calculate average recorded sine wave frequency for each channel pair (Hn, Hr, V) by dividing the duration by 9. Note the average frequency of each channel pair on the data form.

7. Repeat steps 4 through 6 until all target frequencies have been recorded, producing 6 separate data and pick files.

Criteria

The average frequency for the nine cycles (obtained by dividing 9 cycles by the duration in seconds) must be within plus or minus 1% of the actual frequency for each of the 6 records.

If the results are outside this range, the data logger must be marked with a GEOVision REJECT tag until it can be repaired and retested.

If results are acceptable affix label indicating the initials of the person performing the calibration, the date of calibration, and the due date for the next calibration (12 months).

Procedure Approval

Approved by:

John G. Diehl	President
Name	Title
Signature	July 21, 2008
	Date

Calibration Laboratory Approval (if required):

Name	Title
Signature	Date

EDISON ESI℠ Calibration Report

TEST NUMBER 573795

A SOUTHERN CALIFORNIA EDISON® Company

Metrology
7300 Fenwick Lane
Westminster, CA 92683
Toll Free: 866-723-2257

GEOVision Geophysical Services
1124 Olympic Drive
Corona, CA 92881-3390

NVLAP®
Lab Code: 105014-0

Manufacturer:	Oyo
Model Number:	3403
Description:	Unit, Suspension Telemetry
Asset Number:	160024
Serial Number:	160024
Cal. Procedure:	Customer
PO Number:	9200-090716-01

Ambient Temperature:	23° C
Ambient Humidity:	56% RH
Condition As Found:	In Tolerance
Condition As Left:	In Tolerance - No Adjustment
Calibration Date:	07/17/2009
Calibration Due Date:	07/17/2010
Calibration Interval:	12 Months

Remarks:
The unit was calibrated with the customer's procedure and specification's which have been reviewed by Metrology Engineering and documented in SCE Document M013987. The data can be found on pages 2 and 3 of this report with the original observation data on page 4.

Standards Utilized

I.D. No.	Manufacturer	Model No.	Description	Cal. Date	Due Date
S1-01252	Hewlett Packard	5335A OPT 010,203040	Counter, Universal	01/29/2009	07/29/2009
S1-01347	Hewlett Packard	3325A	Generator, Function, Synthesizer	05/04/2009	11/04/2009
S1-03686	Fluke	910	Standard, Frequency, Controlled, Gps	01/24/2009	01/24/2010

Calibration Performed By:			Quality Reviewer:	
Branson, Craig A CAB	Metrologist	714-895-0714		7/17/09
Name	Title	Phone	Name	Date

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Custom Specification Report

Test No. 573795
Asset No. 160024

Oyo 3403 Unit, Suspension Telemetry,

STEP NUM	FUNCTION TESTED	NOMINAL VALUE	AS FOUND	AS LEFT	Out of Tol	CALIBRATION TOLERANCE
	CH HN Frequency Sine Wave	50.00 Hz	50.00	Same		49.50 to 50.50 Hz [EMU 0.000250]
	"	100.0 Hz	100.0	Same		99.0 to 101.0 Hz [EMU 0.000500]
	"	200.0 Hz	200.2	Same		198.0 to 202.0 Hz [EMU 0.001000]
	"	500.0 Hz	500.0	Same		495.0 to 505.0 Hz [EMU 0.002500]
	"	1000 Hz	1000	Same		990 to 1010 Hz [EMU 0.005000]
	"	2000 Hz	2000	Same		1980 to 2020 Hz [EMU 0.010000]
	CH HR Frequency Sine Wave	50.00 Hz	50.00	Same		49.50 to 50.50 Hz [EMU 0.000250]
	"	100.0 Hz	100.0	Same		99.0 to 101.0 Hz [EMU 0.000500]
	"	200.0 Hz	200.0	Same		198.0 to 202.0 Hz [EMU 0.001000]
	"	500.0 Hz	500.0	Same		495.0 to 505.0 Hz [EMU 0.002500]
	"	1000 Hz	1001	Same		990 to 1010 Hz [EMU 0.005000]
	"	2000 Hz	2000	Same		1980 to 2020 Hz [EMU 0.010000]
	CH V Frequency Sine Wave	50.00 Hz	50.00	Same		49.50 to 50.50 Hz [EMU 0.000250]
	"	100.0 Hz	100.0	Same		99.0 to 101.0 Hz [EMU 0.000500]
	"	200.0 Hz	200.0	Same		198.0 to 202.0 Hz [EMU 0.001000]
	"	500.0 Hz	500.0	Same		495.0 to 505.0 Hz [EMU 0.002500]

Remarks:

MudCats CPM: Version 2.2.2 (Professional)
Src DUI: {9548AF3D-C74D-4C9F-AEEF-21EF560BC451} (o)
Doc DUI: {1269C0B2-3A13-416A-81BF-409D9887DDDA} (o)

ATTACHMENT 2
Page 1 of 2

Customer

Test No. 573795
Asset No. 160024

Custom Specification Report

Oyo 3403 Unit, Suspension Telemetry,

STEP NUM	FUNCTION TESTED	NOMINAL VALUE	AS FOUND	AS LEFT	Out of Tol	CALIBRATION TOLERANCE
	CH V Frequency Sine Wave	1000 Hz	1000	Same		990 to 1010 Hz [EMU 0.005000]
	"	2000 Hz	2000	Same		1980 to 2020 Hz [EMU 0.010000]

Remarks:

160024 Pg 4 of 4

~~160024~~ 573795

GEOVision geophysical services

SUSPENSION PS SEISMIC LOGGER/RECORDER CALIBRATION DATA FORM

INSTRUMENT DATA

System mfg.:	Oyo	Model no.:	3403
Serial no.:	160024	Calibration date:	7/17/2009
By:	Craig Branson	Due date:	7/17/2010
Counter mfg.:	Hewlett-Packard	Model no.:	5335A
Serial no.:	2626A09881	Calibration date:	1/29/2009
By:	SCE #S1-01252	Due date:	7/29/2009
Signal generator mfg.:	Hewlett-Packard	Model no.:	3325A
Serial no.:	2652A25647	Calibration date:	5/4/2009
By:	SCE #S1-01347	Due date:	11/4/2009

SYSTEM SETTINGS:

Gain:	8	
Filter	10KHz	
Range:	See sample period in table below	
Delay:	0	
Stack (1 std)	1	
System date = correct date and time	7/17/2009	1037

PROCEDURE:

Set sine wave frequency to target frequency with amplitude of approximately 0.25 volt peak
Note actual frequency on data form.
Set sample period and record data file to disk. Note file name on data form.
Pick duration of 9 cycles using PSLOG.EXE program, note duration on data form, and save as .sps file. Calculate average frequency for each channel pair and note on data form.

Average frequency must be within +/- 1% of actual frequency at all data points.

Maximum error ((AVG-ACT)/ACT*100)% As found 0.10% As left 0.10%

Target Frequency (Hz)	Actual Frequency (Hz)	Sample Period (microS)	File Name	Time for 9 cycles Hn (msec)	Average Frequency Hn (Hz)	Time for 9 cycles Hr (msec)	Average Frequency Hr (Hz)	Time for 9 cycles V (msec)	Average Frequency V (Hz)
50.00	50.00	200	501	180.00	50.00	180.00	50.00	180.00	50.00
100.0	100.0	100	502	90.00	100.0	90.00	100.0	90.00	100.0
200.0	200.0	50	503	44.95	200.2	45.00	200.0	45.00	200.0
500.0	500.0	20	504	18.00	500.0	18.00	500.0	18.00	500.0
1000	1000	10	505	9.000	1000	8.990	1001	9.000	1000
2000	2000	5	506	4.500	2000	4.500	2000	4.500	2000

Calibrated by: Craig Branson (Name) 7/17/2009 (Date) Craig Branson (Signature)

Witnessed by: Robert Steller (Name) 7/17/2009 (Date) (Signature)

Suspension PS Seismic Recorder/Logger Calibration Data Form Rev 2.0 July 21, 2008

APPENDIX D

EARTHSPECTIVES
250 Goddard
Irvine, California 92618
Phone: (949) 777-1270
Fax: (949) 777-1283

May 21, 2010

GeoDesign, Inc.
2121 Towne Center Place, Suite 130
Anaheim, California 92806

Attention: Mr. Chris Zadoorian

Dear Chris:

SPT Hammer Energy Measurement
Proposed Temecula Hospital
Temecula, California
GeoDesign Project No. Turner Const 1-02
ES Project No. 10053-254

INTRODUCTION

This letter report summarizes the results of EarthSpectives' (ES) SPT hammer energy measurements performed on May 18, 2010. It provides a description of the test program and results.

SPT energy measurements were accomplished using a Pile Driving Analyzer (PDA) system manufactured by Pile Dynamics, Inc. and was conducted in general accordance with ASTM 4945 and 6066 test standards. Results are summarized in Table 1, while more details regarding energy records are provided in Appendix A.

TESTING CONDITIONS

SPT hammer energy measurements were performed during Mud-Rotary drilling at Boring Location # 2 with a Mahew Drill Rig equipped with a hydraulic automatic trip hammer. HF 2-1/4 drill rod was used for soil sampling.

INSTRUMENTATION

SPT energy measurements were performed by placing a 2 ft instrumented section of drill rod at the top of the drill string between the hammer and the existing sampling rods. The instruments consist of two sets of accelerometers and strain transducers, mounted on opposite sides of the drill rod, with a view to evaluate normal and eccentric effects. The analyzer acquired and processed the signals during sampling, and provided real-time evaluations of the maximum SPT hammer transferred energy. The raw data were stored directly on a portable field computer for subsequent analysis in the office.

RESULTS

Results from SPT hammer energy measurements are summarized in Tables 1. It shows the Energy Transfer Ratio (ETR) at each sampling interval. ETR is the ratio of the measured maximum transferred energy to rated energy of the hammer which is the product of the weight of the hammer times the height of fall (140 lb x 30 inches = 4200 lb-in = 0.35 kip-ft).

TABLE 1 – SUMMARY OF SPT HAMMER ENERGY MEASUREMTS

SAMPLING DEPTH (FT)	AVERAGE SPT HAMMER EFFICIENCY (ENERGY TRANSFER RATIO)
10	64%,70%,65%
15	69%,75%,74%
20	70%,74%,71%
25	76%,77%,76%
30	75%,79%,77%
35	75%,80%,77%
40	74%,77%,76%
45	74%,79%,78%
50	75%,81%,79%
55	73%,80%,79%
60	76%,83%,81%
65	76%,80%,79%
70	73%,80%,78%
75	75%,81%,80%
80	69%,79%,74%
85	76%,80%,79%
90	76%,81%,78%
100	77%,82%,80%

NOTE: Numbers in each cell are Min, Max, and Avg efficiency for that sampling depth

Plot of the maximum transferred energy, energy transfer ratio, and blow rate is provided as function of blow number in Appendix A. Table immediately following the plot also provides the minimum, maximum, and average values at sampling dpeth. In general, the average ETR values at individual sampling depths ranged between 65% to 81% with an overall average value of 77.5%.

LIMITATIONS

Professional judgments represented in this report are based on evaluations of the technical information gathered, our understanding of the proposed construction, and our general experience in the geotechnical field. We do not guarantee the performance of the project in any respect, only that our engineering work and judgments are rendered while striving to meet the standard of care of our profession at this time.

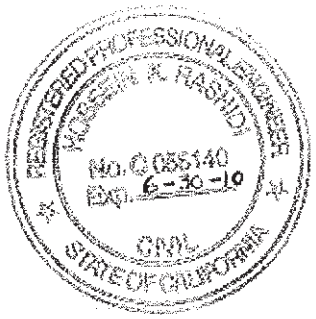
CLOSURE

It has been a pleasure serving GeoDesign, Inc. on this project and we look forward to working with you again. Please call if you have any questions.

Sincerely Submitted for EarthSpectives

Hossein Rashidi

Hossein K. Rashidi, Ph.D., P.E.
Principal Engineer



APPENDIX A

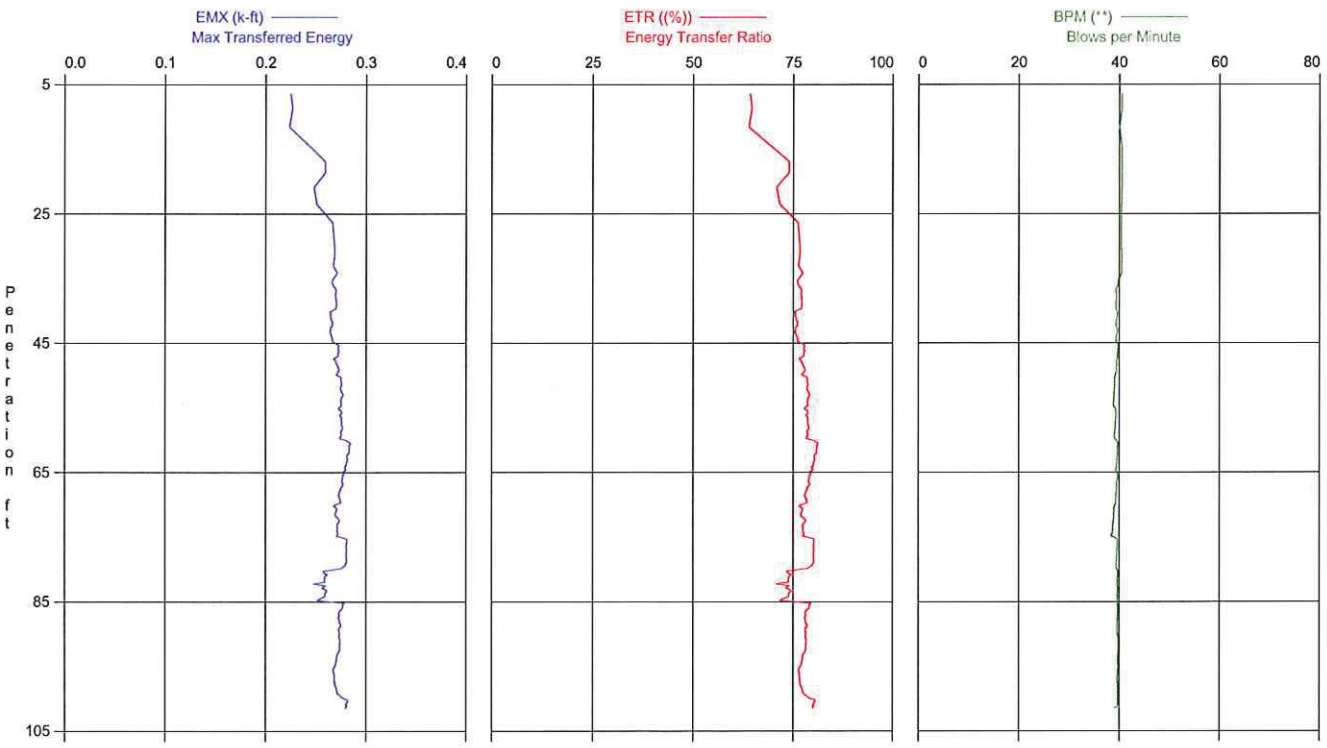
SPT FIELD RESULTS

EarthSpectives - Case Method Results

PDIPLOT Ver. 2009.1 - Printed: 21-May-2010

Test date: 18-May-2010

TURNER CONSTRUCTION PROJECT 1-02 - SPT HAMMER ENERGY MEASUREMENT - BORING HOLE # 2



TURNER CONSTRUCTION PROJECT 1-02 - SPT HAMMER ENERGY MEASUREMENT - BORING HSB-EN

SPT HAMMER ENERGY MEASUREMENT

OP: BA

Test date: 18-May-2010

AR: 1.41 in^2
LE: 107.00 ft
WS: 16,807.9 f/s

SP: 0.492 k/ft3
EM: 30,000 ksi
JC: 0.70

EMX: Max Transferred Energy
ETR: Energy Transfer Ratio
BPM: Blows per Minute
RMX: Max Case Method Capacity
RX5: Max Case Method Capacity (JC=0.5)

RX9: Max Case Method Capacity (JC=0.9)
CSX: Max Measured Compr. Stress
TSX: Tension Stress Maximum
CSI: Max F1 or F2 Compr. Stress

BL# end	depth ft	BLC bl/ft	TYPE	EMX k-ft	ETR (%)	BPM **	RMX kips	RX5 kips	RX9 kips	CSX ksi	TSX ksi	CSI ksi
16	10.00	3	AV13	0.2	64.0	40.6	2.6	2.7	2.5	41.5	19.5	41.7
			MAX	0.2	65.1	40.7	4.4	4.7	4.0	44.3	21.0	44.6
			MIN	0.2	60.2	40.4	1.1	1.5	1.1	29.9	18.2	30.0
29	15.00	3	AV12	0.2	65.1	40.2	2.3	3.2	1.7	31.3	20.8	31.5
			MAX	0.2	69.8	40.8	6.4	13.9	3.5	33.3	22.4	33.8
			MIN	0.2	63.9	36.4	0.6	1.1	0.4	26.7	9.2	27.0
55	20.00	5	AV25	0.3	73.6	40.5	4.7	12.0	3.1	28.2	8.6	28.5
			MAX	0.3	75.1	40.8	10.1	17.0	4.4	29.2	15.8	29.6
			MIN	0.2	68.7	40.1	0.7	2.7	0.0	25.6	7.3	25.8
72	25.00	3	AV16	0.2	71.4	40.5	4.2	5.7	3.3	26.0	14.5	26.4
			MAX	0.3	73.6	40.7	8.3	14.9	6.0	30.2	15.8	30.3
			MIN	0.2	70.0	40.1	0.0	0.8	0.0	25.4	13.1	25.9
83	30.00	2	AV6	0.3	76.3	40.4	9.7	16.9	3.1	29.3	14.4	29.5
			MAX	0.3	76.7	40.6	14.2	20.5	8.0	30.4	15.0	30.6
			MIN	0.3	75.8	40.1	8.3	15.8	1.6	26.1	14.1	26.3
120	35.00	7	AV36	0.3	76.9	40.5	12.7	19.3	6.5	26.5	13.3	27.1
			MAX	0.3	79.0	40.6	15.2	21.8	8.6	28.0	17.5	28.2
			MIN	0.3	75.3	40.3	9.7	16.3	3.1	25.2	12.7	26.1
183	40.00	13	AV62	0.3	76.9	39.5	10.0	16.3	6.9	28.6	14.2	28.8
			MAX	0.3	79.1	40.0	14.1	19.2	13.0	29.3	19.1	29.6
			MIN	0.3	75.4	39.0	7.0	10.0	2.3	26.3	10.1	26.3
353	45.00	34	AV168	0.3	75.8	39.5	9.3	12.3	8.7	26.7	12.7	26.8
			MAX	0.3	77.1	39.8	11.9	18.8	10.1	28.3	14.9	28.4
			MIN	0.3	74.4	39.1	7.9	10.0	5.9	25.7	11.9	26.0
501	50.00	30	AV147	0.3	77.6	39.6	11.9	17.9	9.5	28.6	8.0	28.8
			MAX	0.3	79.3	40.3	17.2	23.4	13.1	29.5	14.4	29.7
			MIN	0.3	74.0	38.4	6.7	12.3	6.4	27.9	3.2	28.2
585	55.00	17	AV84	0.3	78.7	39.0	9.6	15.0	7.0	28.8	14.1	28.9
			MAX	0.3	80.8	39.2	13.3	20.2	10.0	29.4	15.2	29.8
			MIN	0.3	74.5	38.7	6.0	11.2	4.7	26.6	10.7	26.6
712	60.00	25	AV126	0.3	78.7	39.2	9.3	16.2	7.3	28.3	9.8	28.5
			MAX	0.3	79.9	39.5	13.6	20.5	9.4	33.3	15.1	33.7
			MIN	0.3	73.4	37.4	5.8	8.9	2.7	27.0	7.8	27.4
833	65.00	24	AV120	0.3	80.6	39.5	9.9	11.9	9.7	33.7	12.9	33.9
			MAX	0.3	82.5	40.0	12.5	16.2	12.5	34.5	15.2	34.7
			MIN	0.3	75.8	38.6	5.0	8.1	2.0	29.2	11.5	29.4
1007	70.00	35	AV172	0.3	78.7	39.5	9.8	13.0	9.4	29.1	7.1	29.2
			MAX	0.3	80.4	39.9	13.9	18.4	13.9	29.9	12.1	31.1
			MIN	0.3	75.8	39.1	4.8	10.9	2.4	28.5	4.5	28.5
1133	75.00	25	AV125	0.3	77.5	38.8	5.9	12.6	3.9	31.8	8.7	32.2
			MAX	0.3	79.5	39.1	7.8	14.9	5.6	33.9	11.7	33.9
			MIN	0.3	73.2	36.7	3.3	8.9	2.7	26.3	5.9	26.6
1222	80.00	18	AV88	0.3	80.2	39.5	7.3	15.0	5.1	29.3	9.2	29.5
			MAX	0.3	81.2	39.7	9.2	16.8	7.2	29.8	12.5	30.1
			MIN	0.3	75.4	39.2	5.0	12.0	2.0	25.5	5.7	25.6
1381	85.00	32	AV156	0.3	73.7	39.6	6.5	11.3	2.8	25.6	9.2	26.2
			MAX	0.3	78.9	39.8	8.9	14.8	5.5	29.6	13.1	30.3
			MIN	0.2	68.6	39.2	4.7	9.0	1.7	22.7	7.6	23.5
1518	90.00	27	AV136	0.3	78.5	39.6	6.9	13.8	5.9	28.8	7.6	29.1
			MAX	0.3	80.4	39.8	9.9	16.2	9.9	32.9	12.8	33.1
			MIN	0.3	76.3	39.1	5.0	11.9	2.8	28.2	3.4	28.6
1639	100.00	12	AV120	0.3	77.5	39.7	7.4	14.2	6.4	33.1	6.3	33.4
			MAX	0.3	80.9	40.0	12.0	19.1	8.4	34.4	11.6	34.5
			MIN	0.3	75.5	39.5	4.6	11.4	2.4	31.8	2.4	32.2

TURNER CONSTRUCTION PROJECT 1-02 - SPT HAMMER ENERGY MEASUREMENT - BORING HOLE ENERGY MEASUREMENT
OP: BA
Test date: 18-May-2010

BL# end	depth ft	BLC bl/ft	TYPE	EMX k-ft	ETR (%)	BPM **	RMX kips	RX5 kips	RX9 kips	CSX ksi	TSX ksi	CSI ksi
1740	101.50	67	AV101	0.3	80.4	39.6	9.2	13.5	7.0	33.7	8.6	34.0
			MAX	0.3	81.9	39.9	12.8	15.3	12.8	34.4	12.1	34.6
			MIN	0.3	77.1	34.9	5.9	12.0	1.5	32.5	5.8	33.0
			Average	0.3	77.5	39.5	8.6	13.7	6.8	29.5	9.9	29.7
			Maximum	0.3	82.5	40.8	17.2	23.4	13.9	44.3	22.4	44.6
			Minimum	0.2	60.2	34.9	0.0	0.8	0.0	22.7	2.4	23.5

Total number of blows analyzed: 1713

Time Summary

Drive	16 seconds	8:18:35 AM - 8:18:51 AM (5/18/2010) BN 2 - 13
Stop	11 minutes 47 seconds	8:18:51 AM - 8:30:38 AM
Drive	16 seconds	8:30:38 AM - 8:30:54 AM BN 16 - 27
Stop	16 minutes 26 seconds	8:30:54 AM - 8:47:20 AM
Drive	35 seconds	8:47:20 AM - 8:47:55 AM BN 29 - 53
Stop	10 minutes 8 seconds	8:47:55 AM - 8:58:03 AM
Drive	22 seconds	8:58:03 AM - 8:58:25 AM BN 55 - 70
Stop	18 minutes 1 second	8:58:25 AM - 9:16:26 AM
Drive	7 seconds	9:16:26 AM - 9:16:33 AM BN 72 - 77
Stop	18 minutes 4 seconds	9:16:33 AM - 9:34:37 AM
Drive	52 seconds	9:34:37 AM - 9:35:29 AM BN 83 - 118
Stop	19 minutes 1 second	9:35:29 AM - 9:54:30 AM
Drive	1 minute 33 seconds	9:54:30 AM - 9:56:03 AM BN 120 - 181
Stop	19 minutes 17 seconds	9:56:03 AM - 10:15:20 AM
Drive	2 minutes 6 seconds	10:15:20 AM - 10:17:26 AM BN 183 - 351
Stop	24 minutes 12 seconds	10:17:26 AM - 10:41:38 AM
Drive	3 minutes 42 seconds	10:41:38 AM - 10:45:20 AM BN 353 - 499
Stop	20 minutes 48 seconds	10:45:20 AM - 11:06:08 AM
Drive	2 minutes 8 seconds	11:06:08 AM - 11:08:16 AM BN 501 - 584
Stop	27 minutes 4 seconds	11:08:16 AM - 11:35:20 AM
Drive	3 minutes 22 seconds	11:35:20 AM - 11:38:42 AM BN 585 - 710
Stop	27 minutes 42 seconds	11:38:42 AM - 12:06:24 PM
Drive	3 minutes 1 second	12:06:24 PM - 12:09:25 PM BN 712 - 831
Stop	25 minutes 30 seconds	12:09:25 PM - 12:34:55 PM
Drive	4 minutes 20 seconds	12:34:55 PM - 12:39:15 PM BN 833 - 1004
Stop	23 minutes 54 seconds	12:39:15 PM - 1:03:09 PM
Drive	3 minutes 12 seconds	1:03:09 PM - 1:06:21 PM BN 1007 - 1131
Stop	22 minutes 13 seconds	1:06:21 PM - 1:28:34 PM
Drive	2 minutes 13 seconds	1:28:34 PM - 1:30:47 PM BN 1133 - 1220
Stop	14 minutes 3 seconds	1:30:47 PM - 1:44:50 PM
Drive	1 minute 57 seconds	1:44:50 PM - 1:46:47 PM BN 1222 - 1378
Stop	16 minutes 49 seconds	1:46:47 PM - 2:03:36 PM
Drive	3 minutes 24 seconds	2:03:36 PM - 2:07:00 PM BN 1381 - 1516
Stop	19 minutes 33 seconds	2:07:00 PM - 2:26:33 PM
Drive	2 minutes 59 seconds	2:26:33 PM - 2:29:32 PM BN 1518 - 1637
Stop	24 minutes 36 seconds	2:29:32 PM - 2:54:08 PM
Drive	2 minutes 33 seconds	2:54:08 PM - 2:56:41 PM BN 1639 - 1740

Total time [6:38:06] = (Driving [0:38:58] + Stop [5:59:08])

APPENDIX E

NEIC: Earthquake Search Results

U N I T E D S T A T E S G E O L O G I C A L S U R V E Y

E A R T H Q U A K E D A T A B A S E

FILE CREATED: Wed Aug 4 02:06:12 2010
Circle Search Earthquakes= 145
Circle Center Point Latitude: 33.480N Longitude: 117.107W
Radius: 100.000 km
Catalog Used: CDMG
Date Range: 1769 to 1973
Magnitude Range: 4.5 - 9.5
Data Selection: California (CDMG)

CATALOG SOURCE	DATE YEAR MO DA	ORIGIN TIME	***COORDINATES*** LAT	LONG	DEPTH km	STD DEV	*******MAGNITUDES******* Ofc mb	Ms	CONTRIBUTED VALUES	F-E REG	STA	***INFORMATION*** IEMMDIP NFAOEDF TFP	PHENOMENA DTSVNWG PED	RADIAL DIST km
CDMG	1800 11 22	2130	33.000	-117.300			6.5		6.5UKCDMG	043	0E	7....3.	.....	56
CDMG	1812 12 08	15	33.700	-117.900			6.9		6.9UKCDMG	043	0D	7....3.	.....	77
CDMG	1862 05 27	20	32.700	-117.200			5.9		5.9UKCDMG	045	0C	7....3.	.....	86
CDMG	1889 02 07	0520	34.100	-116.700			5.3		5.3UKCDMG	043	0D	6....3.	.....	78
CDMG	1890 02 09	1206	33.400	-116.300			6.3		6.3UKCDMG	043	0D	6....3.	.....	75
CDMG	1892 05 28	1115	33.200	-116.200			6.3		6.3UKCDMG	043	0D	6....3.	.....	89
CDMG	1892 06 14	1325	34.200	-117.500			4.9		4.9UKCDMG	043	0C	6....3.	.....	87
CDMG	1894 10 23	2303	32.800	-116.800			5.7		5.7UKCDMG	045	0C	7....3.	.....	80
CDMG	1899 07 22	0046	34.200	-117.400			5.5		5.5UKCDMG	043	0D	7....3.	.....	84
CDMG	1899 07 22	2032	34.300	-117.500			6.5		6.5UKCDMG	043	0D	8....3.	.....	97
CDMG	1899 12 25	1225	33.800	-117.000			6.6		6.6UKCDMG	043	0A	9....3.	.....	36
CDMG	1902 06 11	0245	33.700	-117.100			4.5		4.5UKTO	043		5....3.	.....	24
CDMG	1906 03 03	2025	33.000	-117.000			4.5		4.5UKTO	043		5....3.	.....	54
CDMG	1907 09 20	0154	34.200	-117.100			6.0		6.0MLRI	043		7....3.	.....	79
CDMG	1910 04 11	0757	33.700	-117.400			5.0		5.0UKTO	043		.F...3.	.....	36
CDMG	1910 05 13	0620	33.700	-117.400			5.0		5.0UKTO	043		5....3.	.....	36
CDMG	1910 05 15	1547	33.700	-117.400			6.0		6.0MLRI	043		7....3.	.....	36
CDMG	1911 08 11	2340	33.800	-116.700			4.5		4.5UKTO	043		5....3.	.....	51
CDMG	1916 09 30	0211	33.500	-116.500			5.0		5.0UKTO	043		5....3.	.....	56
CDMG	1918 04 21	223225	33.750	-117.000			6.8		6.8MLGR	043		9D...3.	.....	31
CDMG	1918 06 06	2232	33.750	-117.000			5.0		5.0UKTO	043		5....3.	.....	31
CDMG	1920 01 01	0235	33.200	-116.700			5.0		5.0UKTO	043		6....3.	.....	48
CDMG	1923 06 30	0022	34.000	-117.000			4.5		4.5UKTO	043		5....3.	.....	58
CDMG	1923 07 23	073026	34.000	-117.250			6.2		6.2MLGR	043		7....3.	.....	59
CDMG	1925 08 08	1013	33.500	-117.000			4.5		4.5UKTO	043		5....3.	.....	10
CDMG	1930 01 16	002433.90	34.180	-116.920			5.2		5.2MLEH	043		7....3.	.....	79
CDMG	1930 01 16	003403.60	34.180	-116.920			5.1		5.1MLEH	043		7....3.	.....	79
CDMG	1933 03 11	015407.80	P 33.617	-117.967			6.3		6.3MLPAS	043	A	9D...3.	.....	81
CDMG	1933 03 11	0204	P 33.750	-118.083			4.9		4.9MLPAS	043	C	.....3.	.....	95
CDMG	1933 03 11	0209	P 33.750	-118.083			5.0		5.0MLPAS	043	C	.....3.	.....	95
CDMG	1933 03 11	0210	P 33.750	-118.083			4.6		4.6MLPAS	043	C	.....3.	.....	95
CDMG	1933 03 11	0216	P 33.750	-118.083			4.8		4.8MLPAS	043	C	.....3.	.....	95
CDMG	1933 03 11	0217	P 33.600	-118.000			4.5		4.5MLPAS	043	E	.....3.	.....	83
CDMG	1933 03 11	0227	P 33.750	-118.083			4.6		4.6MLPAS	043	C	.....3.	.....	95
CDMG	1933 03 11	0230	P 33.750	-118.083			5.1		5.1MLPAS	043	C	.....3.	.....	95
CDMG	1933 03 11	0259	P 33.750	-118.083			4.6		4.6MLPAS	043	C	.....3.	.....	95
CDMG	1933 03 11	0323	P 33.750	-118.083			5.0		5.0MLPAS	043	C	.....3.	.....	95
CDMG	1933 03 11	0436	P 33.750	-118.083			4.6		4.6MLPAS	043	C	.....3.	.....	95
CDMG	1933 03 11	0439	P 33.750	-118.083			4.9		4.9MLPAS	043	C	.....3.	.....	95
CDMG	1933 03 11	0440	P 33.750	-118.083			4.7		4.7MLPAS	043	C	.....3.	.....	95
CDMG	1933 03 11	051022	P 33.700	-118.067			5.1		5.1MLPAS	043	C	.....3.	.....	92
CDMG	1933 03 11	0513	P 33.750	-118.083			4.7		4.7MLPAS	043	C	.....3.	.....	95
CDMG	1933 03 11	051804	P 33.575	-117.983			5.2		5.2MLPAS	043	C	.....3.	.....	81
CDMG	1933 03 11	065803	P 33.683	-118.050			5.5		5.5MLPAS	043	C	.....3.	.....	90
CDMG	1933 03 11	0808	P 33.750	-118.083			4.5		4.5MLPAS	043	C	.....3.	.....	95
CDMG	1933 03 11	085457	P 33.700	-118.067			5.1		5.1MLPAS	043	C	.....3.	.....	92
CDMG	1933 03 11	0910	P 33.750	-118.083			5.1		5.1MLPAS	043	C	.....3.	.....	95
CDMG	1933 03 11	1104	P 33.750	-118.133			4.6		4.6MLPAS	043	C	.....3.	.....	99
CDMG	1933 03 11	1653	P 33.750	-118.083			4.8		4.8MLPAS	043	C	.....3.	.....	95
CDMG	1933 03 12	0616	P 33.750	-118.083			4.6		4.6MLPAS	043	C	.....3.	.....	95
CDMG	1933 03 12	1738	P 33.750	-118.083			4.5		4.5MLPAS	043	C	.....3.	.....	95
CDMG	1933 03 12	2354	P 33.750	-118.083			4.5		4.5MLPAS	043	C	.....3.	.....	95
CDMG	1933 03 13	0432	P 33.750	-118.083			4.7		4.7MLPAS	043	C	.....3.	.....	95
CDMG	1933 03 13	131828	P 33.750	-118.083			5.3		5.3MLPAS	043	C	4....3.	.....	95
CDMG	1933 03 14	1219	P 33.750	-118.083			4.5		4.5MLPAS	043	C	.....3.	.....	95
CDMG	1933 03 14	190150	P 33.617	-118.017			5.1		5.1MLPAS	043	C	.....3.	.....	85
CDMG	1933 03 15	111332	P 33.617	-118.017			4.9		4.9MLPAS	043	C	4....3.	.....	85
CDMG	1933 08 06	0332	P 33.333	-116.300			4.7		4.7MLPAS	043	C	4....3.	.....	76
CDMG	1934 01 09	1410	P 34.100	-117.683			4.5		4.5MLPAS	043	A	5....3.	.....	86
CDMG	1934 01 20	2117	P 33.617	-118.117			4.5		4.5MLPAS	043	B	4....3.	.....	94
CDMG	1935 09 03	0647	P 34.033	-117.317			4.5		4.5MLPAS	043	B	4....3.	.....	64
CDMG	1935 10 24	144807.60	P 34.100	-116.800			5.1		5.1MLPAS	043	A	5....3.	.....	74

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NEIC: Earthquake Search Results

U N I T E D S T A T E S G E O L O G I C A L S U R V E Y

E A R T H Q U A K E D A T A B A S E

FILE CREATED: Wed Aug 4 02:04:57 2010
Circle Search Earthquakes= 77
Circle Center Point Latitude: 33.480N Longitude: 117.107W
Radius: 100.000 km
Catalog Used: PDE
Date Range: 1974/01/01 to 2010/07/31
Magnitude Range: 4.5 - 9.5
Data Selection: Historical & Preliminary Data

CATALOG SOURCE	DATE YEAR MO DA	ORIGIN TIME	***COORDINATES*** LAT	LONG	DEPTH km	STD DEV	*******MAGNITUDES******* Ofc mb	Ms	CONTRIBUTED VALUES	F-E REG	STA	***INFORMATION*** IEMMDIP NFAOEDF TFP PED	PHENOMENA DTSVNWG	RADIAL DIST km
PDE	1975 08 02	001407.70P	33.517	-116.550	13		4.7|4.6| |	|4.7MLPAS	|043	031	.F...4P	.....	51
PDE	1979 06 29	055320.50P	34.250	-116.900	6		4.5|4.1| |	|4.5MLPAS	|043	034	6D...4P	.....	87
PDE	1979 06 30	003411.60P	34.249	-116.900	10		4.9|4.6| |4.8MLBRK	|4.9MLPAS	|043	066	6D...4P	.....	87
PDE	1980 02 25	104738.70P	33.517	-116.550	6		5.6|5.1|4.7Z|5.6MLBRK	|5.5MLPAS	|043	113	6D...3P	.....	51
PDE	1982 03 22	085328.60P	33.050	-116.217	5G		4.5|4.4| |	|4.5MLPAS	|043	039	4F...4P	.....	95
PDE	1982 06 15	234921.30P	33.550	-116.667	12G		4.8|4.5| |4.8MLBRK	|4.8MLPAS	|043	061	5FU..3P	.....	41
PDE	1983 06 29	080836.40P	32.633	-117.383	5G		4.6|4.4| |	|4.6MLPAS	|045	038	6DU..4P	.....	97
PDE	1984 08 06	081436.50P	33.980	-116.710	14G		4.5|4.0| |4.5MLBRK	|4.3MLPAS	|043	026	5F...3P	.....	66
PDE	1984 10 10	212258.80P	33.140	-116.500	12G		4.6|4.3| |4.6MLBRK	|4.5MLPAS	|043	042	4F...3P	.....	67
PDE	1985 10 02	234412.40P	34.030	-117.250	15		4.8|4.1| |4.7MLBRK	|4.8MLPAS	|043	053	5FU..4P	.....	62
PDE	1986 07 08	092044.50P	34.000	-116.610	12		6.1|5.8|6.0Z|6.1Mw01028	|6.0MLPAS	|043	300	7CUM.3B	.....S	73
PDE	1986 07 13	134708.20P	32.970	-117.870	10		5.3|5.6|5.8Z|	|5.3MLPAS	|045	268	6CUM.4P	.....S	90
PDE	1986 07 13	140133 P	32.990	-117.850	12		4.6|4.8| |	|4.6MLPAS	|045	039	.....4P	.....	87
PDE	1986 10 15	022847.70P	33.950	-116.570	9		4.7|4.3| |4.1MLBRK	|4.7MLPAS	|043	037	5F...4P	.....	72
PDE	1988 06 26	150458.40P	34.140	-117.710	8		4.6|4.5| |	|4.6MLPAS	|043	070	5FU..4P	.....	91
PDE	1988 11 20	053928.60P	33.510	-118.070	6G		4.6|5.0| |4.6MLBRK	|4.5MLPAS	|043	093	5FU..3P	.....	89
PDE	1988 12 16	055304.90P	33.980	-116.680	8		5.2|4.8| |5.2MLBRK	|4.8MLPAS	|043	063	5FU..3P	.....	68
PDE	1989 04 07	200730.20P	33.620	-117.900	13		4.6|5.0| |4.6MLBRK	|4.5MLPAS	|043	074	6DU..3P	.....	75
PDE	1989 12 28	094108.10P	34.190	-117.390	15		4.5| | |4.2MLBRK	|4.5MLPAS	|043	037	4F...4P	.....	82
PDE	1990 02 28	234336.60P	34.140	-117.700	5		5.7|5.5|5.5Z|6.2MLBRK	|5.7MwHRV	|043	191	7CUM.4B	.....	91
PDE	1990 03 01	032303 P	34.150	-117.720	11		4.8|4.3| |4.8MLBRK	|4.7MLPAS	|043	052	.F...3P	.....	93
PDE	1990 03 02	172625.40P	34.140	-117.690	6		4.6|4.5| |4.6MLBRK	|4.6MLPAS	|043	051	.F...3P	.....	90
PDE	1990 04 17	223227.20P	34.110	-117.720	4		4.7|4.5| |4.7MLBRK	|4.6MLPAS	|043	056	6D...3P	.....	89
PDE	1992 04 23	022529.85P	33.957	-116.317	11		4.6| | |4.6MLGS	|4.6MLPAS	|043	036	.F...3P	.....	90
PDE	1992 04 23	045023.22P	33.961	-116.318	12		6.1|5.7|6.3Z|6.1Mw01032	|6.1MLPAS	|043	392	7CUM.3B	.....	90
PDE	1992 04 23	051009.38P	34.012	-116.325	3		4.6| | |	|4.6MLGS	|043	032	.....4P	.....	93
PDE	1992 05 04	161949.71P	33.942	-116.304	12		4.8|4.4| |	|4.8MDPAS	|043	069	5F...4P	.....	90
PDE	1992 05 06	023843.33P	33.943	-116.315	7		4.9|4.4| |4.9MLBRK	|4.5MDPAS	|043	062	5F...3P	.....	89
PDE	1992 05 18	154417.96P	33.951	-116.338	7		4.9|4.6| |	|4.9MDPAS	|043	072	5F...4P	.....	88
PDE	1992 06 28	123640.60P	34.139	-116.431	10		5.1|5.0| |	|5.1MDPAS	|043	082	.....4P	.....	96
PDE	1992 06 28	132605.14P	34.162	-116.405	6G		4.9|4.7| |	|4.9MLPAS	|043	047	.....4P	.....	99
PDE	1992 06 28	135045.71P	34.111	-116.410	0		4.9|4.6| |	|4.9MLPAS	|043	037	.....4P	.....	95
PDE	1992 06 28	144321 P	34.163	-116.855	6G		5.3|5.5|5.4Z|	|5.3MDPAS	|043	180	.F...4P	.....	79
PDE	1992 06 28	150530.70P	34.203	-116.827	5G		6.5|6.3|6.7Z|6.5MwHRV	|6.9MeGS	|043	464	8CUM.3B	.....S	84
PDE	1992 06 28	152429.31P	34.211	-116.760	6G		4.5|4.9| |	|4.5MLPAS	|043	019	.F...4P	.....	87
PDE	1992 06 28	170131.91P	34.178	-116.922	13		4.7|5.0| |	|4.7MLPAS	|043	098	.F...4P	.....	79
PDE	1992 06 28	170557.54P	34.256	-116.912	8		4.6|4.6| |	|4.6MLPAS	|043	042	.F...4P	.....	87
PDE	1992 06 28	211316.46P	34.095	-116.427	3		4.6|4.3| |	|4.6MDPAS	|043	028	.....4P	.....	92
PDE	1992 06 29	140837.70P	34.106	-116.402	11		4.9|4.9| |	|4.9MLPAS	|043	092	.F...4P	.....	95
PDE	1992 06 29	141338.78P	34.108	-116.404	9		5.4|5.2|4.9Z|5.4MwHRV	|5.4MLPAS	|043	127	4F.M.3B	.....	95
PDE	1992 06 29	160142.77P	33.876	-116.267	1		5.5|4.8| |5.5MwHRV	|5.2MLPAS	|043	079	.F.M.3B	.....	89
PDE	1992 06 29	164141.92P	34.250	-116.719	1		4.9|4.2| |	|4.9MLPAS	|043	041	.....4P	.....	92
PDE	1992 06 30	143811.59P	34.004	-116.361	0		5.2|5.1|4.6Z|5.2MwHRV	|4.8MLPAS	|043	097	...M.3B	.....	90
PDE	1992 06 30	212254.44P	34.130	-116.734	12		4.8|4.5|4.0Z|	|4.8MLPAS	|043	041	3F...4P	.....	79
PDE	1992 07 06	120059.19P	34.092	-116.369	1		4.5|4.2| |	|4.5MLPAS	|043	021	.....4P	.....	96
PDE	1992 07 09	014357.60P	34.239	-116.837	0		5.3|5.6|5.2Z|5.7MLBRK	|5.3MwHRV	|043	272	6C.M.4B	.....S	87
PDE	1992 07 24	181436.23P	33.902	-116.284	9		5.0|4.4|4.7Z|	|5.0MLPAS	|043	061	5F...4P	.....	89
PDE	1992 07 25	043159.97P	33.937	-116.306	5		4.9|4.6| |	|4.9MLPAS	|043	066	5F...4P	.....	89
PDE	1992 07 28	182703.88P	34.112	-116.415	0		4.6|4.4| |	|4.6MLPAS	|043	053	4F...4P	.....	94
PDE	1992 08 15	082414.66P	34.088	-116.402	0		4.8|4.2| |4.5MLGS	|4.8MLPAS	|043	048	5F...4P	.....	93
PDE	1992 08 17	204152.10P	34.195	-116.862	11		5.3|4.5|4.5Z|4.7MLGS	|5.3MLPAS	|043	085	5F...4P	.....	82
PDE	1992 09 15	084711.27P	34.064	-116.361	9		5.2|4.8|4.8Z|5.6MLBRK	|5.2MwHRV	|043	118	5F.M.4B	.....	94
PDE	1992 11 27	160057.48P	34.340	-116.900	1		5.6|5.1|4.8Z|5.6MLBRK	|5.3MLPAS	|043	151	6DU..3P	.....	97
PDE	1992 12 04	125942.10P	34.361	-116.913	0		4.5|3.9| |4.5MLBRK	|4.2MLPAS	|043	050	3F...3P	.....	99
PDE	1993 08 21	014638.40P	34.029	-116.321	9		5.0|4.6| |4.7MLGS	|5.0MLPAS	|043	112	5F...4P	.....	94
PDE	1994 04 06	190104.06P	34.192	-117.095	7		5.0|4.4| |4.8MLPAS	|5.0MLBRK	|043	126	5F...4P	.....	78
PDE	1995 05 07	110333.04P	33.905	-116.288	10		5.0|4.4|4.3Z|4.8MLPAS	|5.0MLBRK	|043	161	5F...4P	.....	89
PDE	1997 07 26	031455.99P	33.399	-116.354	11		4.8| | |4.8MLPAS	|	|043	064	4F...3P	.....	70
PDE	1997 12 05	170438.92P	34.097	-116.996	4		4.5| | |4.5MLBRK	|4.1MLPAS	|043	057	.F...3P	.....	69
PDE	1998 03 11	121851.83P	34.024	-117.230	14		4.5|4.0| |4.5MLPAS	|4.4MLBRK	|043	066	.F...3P	.....	61
PDE	1998 10 01	181815.96P	34.112	-116.920	4		4.7|4.4| |4.7MLPAS	|	|043	058	.F...3P	.....	72
PDE	1998 10 27	010840.65P	34.323	-116.844	5		4.5|4.3| |4.9MLPAS	|4.5MwBRK	|043	071	5F.M.4P	.....	96

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APPENDIX F

SPT Liquefaction Spreadsheet

JOB NAME	Prpoosed Temecula Hospital	Boring	GDI-1		
DATE	8/11/2010	*y*	120	pcf	
BY	CJZ	GW level	27	ft	
CHECKED BY		HHGL	12.9	ft	
DATE		GS Elevation	1054.5		
		LFFE	1057.4		

Magnitue	a max
6.84	0.88

MSF 1.27

Total Settlement 0.98 INCHES

Elevation (MSL)	Depth (feet)	Soil Type	Nfield	Boulanger and Idriss (2006)	σo' (psf) current	σo' (psf) HHGWL	C_E	C_N	C_B	C_S	C_R	$(N_1)_{60}$	Fines Correction			ΔN	$(N_1)_{60}$	CRR	Rd	CSR	FOS	SETTLEMENT (%)	SETTLEMENT (inches)
					psf	psf	energy	stress	5" diam	w/out liner	rod	interim Corr.	%fines	Alpha	Beta			1998 eq. <N=30					
1053.5	1	SM	5		120	468	1.32	1.75	1.05	1.2	0.75		15	2.50	1.05				1.000	**0.116**	2.00		
1053	1.5	SM	5		180	528	1.32	1.71	1.05	1.2	0.75		15	2.50	1.05				0.998	**0.155**	2.00		
1052.5	2	SM	5		240	588	1.32	1.68	1.05	1.2	0.75		15	2.50	1.05				0.997	**0.185**	2.00		
1052	2.5	SM	5		300	648	1.32	1.64	1.05	1.2	0.75		15	2.50	1.05				0.996	**0.209**	2.00		
1051.5	3	SM	5		360	708	1.32	1.61	1.05	1.2	0.75		15	2.50	1.05				0.995	**0.230**	2.00		
1051	3.5	SM	5		420	768	1.32	1.57	1.05	1.2	0.75		15	2.50	1.05				0.994	**0.247**	2.00		
1050.5	4	SM	5		480	828	1.32	1.54	1.05	1.2	0.75		15	2.50	1.05				0.993	**0.261**	2.00		
1050	4.5	SM	5		540	888	1.32	1.51	1.05	1.2	0.75		15	2.50	1.05				0.991	**0.274**	2.00		
1049.5	5	SM	18		600	948	1.32	1.48	1.05	1.2	0.75		15	2.50	1.05				0.990	**0.285**	2.00		
1049	5.5	SM	18		660	1008	1.32	1.46	1.05	1.2	0.75		15	2.50	1.05				0.989	**0.294**	2.00		
1048.5	6	SM	18		720	1068	1.32	1.43	1.05	1.2	0.75		15	2.50	1.05				0.988	**0.302**	2.00		
1048	6.5	SM	18		780	1128	1.32	1.40	1.05	1.2	0.75		15	2.50	1.05				0.987	**0.310**	2.00		
1047.5	7	SM	18		840	1188	1.32	1.38	1.05	1.2	0.75		15	2.50	1.05				0.986	**0.316**	2.00		
1047	7.5	ML	18		900	1248	1.32	1.35	1.05	1.2	0.75		50	5.00	1.20				0.985	**0.322**	2.00		
1046.5	8	ML	18		960	1308	1.32	1.33	1.05	1.2	0.75		50	5.00	1.20				0.983	**0.328**	2.00		
1046	8.5	ML	21		1020	1368	1.32	1.31	1.05	1.2	0.75		50	5.00	1.20				0.982	**0.333**	2.00		
1045.5	9	ML	21		1080	1428	1.32	1.29	1.05	1.2	0.75		50	5.00	1.20				0.981	**0.337**	2.00		
1045	9.5	ML	21		1140	1488	1.32	1.27	1.05	1.2	0.75		50	5.00	1.20				0.980	**0.341**	2.00		
1044.5	10	ML	21		1200	1548	1.32	1.24	1.05	1.2	0.75		50	5.00	1.20				0.979	**0.345**	2.00		
1044	10.5	ML	21		1260	1608	1.32	1.23	1.05	1.2	0.75		50	5.00	1.20				0.978	**0.348**	2.00		
1043.5	11	ML	21		1320	1668	1.32	1.21	1.05	1.2	0.75		50	5.00	1.20				0.977	**0.351**	2.00		
1043	11.5	ML	21		1380	1728	1.32	1.19	1.05	1.2	0.75		50	5.00	1.20				0.976	**0.354**	2.00		
1042.5	12	ML	21		1440	1788	1.32	1.17	1.05	1.2	0.75		41	5.00	1.20				0.975	**0.356**	2.00		
1042	12.5	ML	12		1500	1848	1.32	1.15	1.05	1.2	0.75		41	5.00	1.20				0.974	**0.359**	2.00		
1041.5	13	ML	12		1560	1902	1.32	1.14	1.05	1.2	0.85	19.3	41	5.00	1.20	8.9	**28**	0.374	0.973	**0.362**	1.31	0.000	0.002
1041	13.5	ML	12		1620	1931	1.32	1.12	1.05	1.2	0.85	19.0	41	5.00	1.20	8.8	**28**	0.362	0.972	**0.370**	1.24	0.001	0.005
1040.5	14	ML	12		1680	1960	1.32	1.10	1.05	1.2	0.85	18.7	41	5.00	1.20	8.7	**27**	0.352	0.971	**0.378**	1.18	0.001	0.005
1040	14.5	ML	12		1740	1989	1.32	1.09	1.05	1.2	0.85	18.5	41	5.00	1.20	8.7	**27**	0.342	0.970	**0.385**	1.13	0.001	0.005
1039.5	15	ML	12		1800	2018	1.32	1.07	1.05	1.2	0.85	18.2	41	5.00	1.20	8.6	**27**	0.334	0.969	**0.392**	1.08	0.002	0.010
1039	15.5	CL	7	YES	1860	2047	1.32	1.06	1.05	1.2	0.85	10.5	41	5.00	1.20	7.1	**18**	0.187	0.967	**0.399**	0.59	0.016	0.000
1038.5	16	CL	7	YES	1920	2076	1.32	1.04	1.05	1.2	0.85	10.3	35	5.00	1.20	7.1	**17**	0.185	0.966	**0.406**	0.58	0.016	0.000
1038	16.5	CL	7	YES	1980	2105	1.32	1.03	1.05	1.2	0.85	10.2	35	5.00	1.20	7.0	**17**	0.183	0.965	**0.412**	0.56	0.016	0.000
1037.5	17	CL	7	YES	2040	2134	1.32	1.02	1.05	1.2	0.85	10.1	35	5.00	1.20	7.0	**17**	0.182	0.964	**0.419**	0.55	0.016	0.000
1037	17.5	CL	7	YES	2100	2163	1.32	1.00	1.05	1.2	0.85	9.9	35	5.00	1.20	7.0	**17**	0.180	0.963	**0.425**	0.54	0.016	0.000
1036.5	18	CL	7	YES	2160	2192	1.32	0.99	1.05	1.2	0.85	9.8	35	5.00	1.20	7.0	**17**	0.178	0.962	**0.430**	0.52	0.016	0.000
1036	18.5	CL	7	YES	2220	2221	1.32	0.98	1.05	1.2	0.85	9.7	35	5.00	1.20	6.9	**17**	0.177	0.961	**0.436**	0.51	0.016	0.000
1035.5	19	CL	7	YES	2280	2250	1.32	0.97	1.05	1.2	0.85	9.6	35	5.00	1.20	6.9	**16**	0.175	0.959	**0.441**	0.50	0.016	0.000
1035	19.5	CL	7	YES	2340	2279	1.32	0.95	1.05	1.2	0.85	9.4	35	5.00	1.20	6.9	**16**	0.174	0.958	**0.447**	0.49	0.016	0.000
1034.5	20	CL	7	YES	2400	2308	1.32	0.94	1.05	1.2	0.95	10.4	35	5.00	1.20	7.1	**18**	0.186	0.957	**0.452**	0.52	0.016	0.000
1034	20.5	ML	10		2460	2337	1.32	0.93	1.05	1.2	0.95	14.7	35	5.00	1.20	7.9	**23**	0.252	0.956	**0.457**	0.70	0.014	0.084
1033.5	21	ML	10		2520	2366	1.32	0.92	1.05	1.2	0.95	14.5	35	5.00	1.20	7.9	**22**	0.249	0.954	**0.462**	0.68	0.014	0.084
1033	21.5	ML	10		2580	2395	1.32	0.91	1.05	1.2	0.95	14.4	35	5.00	1.20	7.9	**22**	0.246	0.953	**0.466**	0.67	0.014	0.084
1032.5	22	ML	10		2640	2424	1.32	0.90	1.05	1.2	0.95	14.2	35	5.00	1.20	7.8	**22**	0.243	0.951	**0.471**	0.65	0.014	0.084
1032	22.5	ML	10	YES	2700	2453	1.32	0.89	1.05	1.2	0.95	14.0	35	5.00	1.20	7.8	**22**	0.240	0.950	**0.475**	0.64	0.014	0.000
1031.5	23	ML	10	YES	2760	2482	1.32	0.88	1.05	1.2	0.95	13.9	35	5.00	1.20	7.8	**22**	0.237	0.948	**0.479**	0.63	0.014	0.000
1031	23.5	ML	10	YES	2820	2511	1.32	0.87	1.05	1.2	0.95	13.7	35	5.00	1.20	7.7	**21**	0.235	0.947	**0.483**	0.61	0.014	0.000
1030.5	24	ML	10	YES	2880	2540	1.32	0.86	1.05	1.2	0.95	13.6	35	5.00	1.20	7.7	**21**	0.232	0.945	**0.487**	0.60	0.014	0.000
1030	24.5	ML	19		2940	2569	1.32	0.85	1.05	1.2	0.95	25.5	43	5.00	1.20	10.1	**36**		0.944	**0.490**	2.00		
1029.5	25	ML	19		3000	2598	1.32	0.84	1.05	1.2	0.95	25.2	43	5.00	1.20	10.0	**35**		0.942	**0.494**	2.00		
1029	25.5	ML	19		3060	2627	1.32	0.83	1.05	1.2	0.95	25.0	43	5.00	1.20	10.0	**35**		0.940	**0.497**	2.00		
1028.5	26	ML	19		3120	2656	1.32	0.82	1.05	1.2	0.95	24.7	43	5.00	1.20	9.9	**35**		0.938	**0.500**	2.00		
1028	26.5	ML	19		3180	2685	1.32	0.81	1.05	1.2	0.95	24.4	43	5.00	1.20	9.9	**34**		0.936	**0.503**	2.00		
1027.5	27	ML	19		3240	2714	1.32	0.81	1.05	1.2	0.95	24.2	43	5.00	1.20	9.8	**34**		0.934	**0.506**	2.00		
1027	27.5	SP	32		3269	2743	1.32	0.80	1.05	1.2	0.95	40.5	5	0.00	1.00	0.1	**41**		0.932	**0.509**	2.00		
1026.5	28	SP	32		3298	2772	1.32	0.80	1.05	1.2	0.95	40.3	5	0.00	1.00	0.1	**40**		0.930	**0.512**	2.00		
1026	28.5	SP	32		3327	2801	1.32	0.79	1.05	1.2	0.95	40.1	5	0.00	1.00	0.1	**40**		0.928	**0.514**	2.00		
1025.5	29	SP	32		3356	2830	1.32	0.79	1.05	1.2	0.95	39.9	5	0.00	1.00	0.1	**40**		0.925	**0.517**	2.00		
1025	29.5	SP	32		3385	2859	1.32	0.79	1.05	1.2	0.95	39.7	5	0.00	1.00	0.0	**40**		0.923	**0.519**	2.00		

1024.5	30	SP	32		3414	2888	1.32	0.78	1.05	1.2	0.95	39.5	5	0.00	1.00	0.0	40		0.921	0.521	2.00		
1024	30.5	SP	46		3443	2917	1.32	0.78	1.05	1.2	0.95	56.6	5	0.00	1.00	0.1	57		0.918	0.523	2.00		
1023.5	31	SP	46		3472	2946	1.32	0.77	1.05	1.2	0.95	56.3	5	0.00	1.00	0.1	56		0.915	0.525	2.00		
1023	31.5	SP	46		3501	2975	1.32	0.77	1.05	1.2	0.95	56.0	5	0.00	1.00	0.1	56		0.913	0.527	2.00		
1022.5	32	SP	46		3530	3004	1.32	0.77	1.05	1.2	0.95	55.7	5	0.00	1.00	0.1	56		0.910	0.528	2.00		
1022	32.5	SP	46		3559	3033	1.32	0.76	1.05	1.2	0.95	55.5	5	0.00	1.00	0.1	56		0.907	0.529	2.00		
1021.5	33	SP	26		3588	3062	1.32	0.76	1.05	1.2	1	32.9	5	0.00	1.00	0.0	33		0.904	0.531	2.00		
1021	33.5	SP	26		3617	3091	1.32	0.76	1.05	1.2	1	32.7	5	0.00	1.00	0.0	33		0.901	0.532	2.00		
1020.5	34	SP	26		3646	3120	1.32	0.75	1.05	1.2	1	32.5	5	0.00	1.00	0.0	33		0.897	0.533	2.00		
1020	34.5	SP	26		3675	3149	1.32	0.75	1.05	1.2	1	32.4	5	0.00	1.00	0.0	32		0.894	0.534	2.00		
1019.5	35	ML	14	YES	3704	3178	1.32	0.75	1.05	1.2	1	17.4	35	5.00	1.20	8.5	26	0.309	0.891	0.534	0.73	0.011	0.000
1019	35.5	ML	14	YES	3733	3207	1.32	0.74	1.05	1.2	1	17.3	35	5.00	1.20	8.5	26	0.307	0.887	0.535	0.73	0.011	0.000
1018.5	36	ML	14	YES	3762	3236	1.32	0.74	1.05	1.2	1	17.2	35	5.00	1.20	8.4	26	0.305	0.883	0.536	0.72	0.011	0.000
1018	36.5	ML	14	YES	3791	3265	1.32	0.74	1.05	1.2	1	17.1	35	5.00	1.20	8.4	26	0.303	0.880	0.536	0.72	0.011	0.000
1017.5	37	ML	14	YES	3820	3294	1.32	0.73	1.05	1.2	1	17.0	35	5.00	1.20	8.4	25	0.301	0.876	0.536	0.71	0.011	0.000
1017	37.5	ML	14	YES	3849	3323	1.32	0.73	1.05	1.2	1	17.0	35	5.00	1.20	8.4	25	0.299	0.872	0.536	0.71	0.011	0.000
1016.5	38	ML	14	YES	3878	3352	1.32	0.73	1.05	1.2	1	16.9	35	5.00	1.20	8.4	25	0.297	0.868	0.536	0.70	0.011	0.000
1016	38.5	ML	14	YES	3907	3381	1.32	0.72	1.05	1.2	1	16.8	35	5.00	1.20	8.4	25	0.295	0.864	0.536	0.70	0.011	0.000
1015.5	39	GP	33		3936	3410	1.32	0.72	1.05	1.2	1	39.5	5	0.00	1.00	0.0	40		0.860	0.536	2.00		
1015	39.5	GP	33		3965	3439	1.32	0.72	1.05	1.2	1	39.3	5	0.00	1.00	0.0	39		0.855	0.535	2.00		
1014.5	40	SP	36		3994	3468	1.32	0.71	1.05	1.2	1	42.7	5	0.00	1.00	0.1	43		0.851	0.535	2.00		
1014	40.5	SP	36		4023	3497	1.32	0.71	1.05	1.2	1	42.5	5	0.00	1.00	0.1	43		0.847	0.534	2.00		
1013.5	41	SP	36		4052	3526	1.32	0.71	1.05	1.2	1	42.3	5	0.00	1.00	0.1	42		0.842	0.534	2.00		
1013	41.5	SP	36		4081	3555	1.32	0.70	1.05	1.2	1	42.1	5	0.00	1.00	0.1	42		0.837	0.533	2.00		
1012.5	42	SP	36		4110	3584	1.32	0.70	1.05	1.2	1	41.9	5	0.00	1.00	0.1	42		0.833	0.532	2.00		
1012	42.5	SP	36		4139	3613	1.32	0.70	1.05	1.2	1	41.7	5	0.00	1.00	0.1	42		0.828	0.531	2.00		
1011.5	43	ML	5	YES	4168	3642	1.32	0.69	1.05	1.2	1	5.8	35	5.00	1.20	6.2	12	0.130	0.823	0.530	0.31	0.023	0.000
1011	43.5	ML	5	YES	4197	3671	1.32	0.69	1.05	1.2	1	5.7	35	5.00	1.20	6.1	12	0.130	0.818	0.528	0.31	0.023	0.000
1010.5	44	ML	5	YES	4226	3700	1.32	0.69	1.05	1.2	1	5.7	35	5.00	1.20	6.1	12	0.130	0.814	0.527	0.31	0.023	0.000
1010	44.5	ML	5	YES	4255	3729	1.32	0.69	1.05	1.2	1	5.7	35	5.00	1.20	6.1	12	0.130	0.809	0.526	0.31	0.023	0.000
1009.5	45	SP	23		4284	3758	1.32	0.68	1.05	1.2	1	26.1	23	4.10	1.10	6.8	33		0.804	0.524	2.00		
1009	45.5	SP	23		4313	3787	1.32	0.68	1.05	1.2	1	26.0	23	4.10	1.10	6.8	33		0.799	0.523	2.00		
1008.5	46	SP	23		4342	3816	1.32	0.68	1.05	1.2	1	25.9	23	4.10	1.10	6.7	33		0.794	0.521	2.00		
1008	46.5	SP	23		4371	3845	1.32	0.67	1.05	1.2	1	25.8	23	4.10	1.10	6.7	33		0.788	0.520	2.00		
1007.5	47	SP	29		4400	3874	1.32	0.67	1.05	1.2	1	32.4	5	0.00	1.00	0.0	32		0.783	0.518	2.00		
1007	47.5	SP	29		4429	3903	1.32	0.67	1.05	1.2	1	32.2	5	0.00	1.00	0.0	32		0.778	0.516	2.00		
1006.5	48	SP	29		4458	3932	1.32	0.67	1.05	1.2	1	32.1	5	0.00	1.00	0.0	32		0.773	0.514	2.00		
1006	48.5	SP	29		4487	3961	1.32	0.66	1.05	1.2	1	32.0	5	0.00	1.00	0.0	32		0.768	0.512	2.00		
1005.5	49	SP	29		4516	3990	1.32	0.66	1.05	1.2	1	31.8	5	0.00	1.00	0.0	32		0.763	0.511	2.00		
1005	49.5	SP	29		4545	4019	1.32	0.66	1.05	1.2	1	31.7	5	0.00	1.00	0.0	32		0.758	0.509	2.00		
1004.5	50	SP	29		4574	4048	1.32	0.65	1.05	1.2	1	31.6	5	0.00	1.00	0.0	32		0.753	0.507	2.00		
1004	50.5	SP	19		4603	4077	1.32	0.65	1.05	1.2	1	20.6	8	0.39	1.01	0.7	21	0.232	0.748	0.505	0.58	0.014	0.084
1003.5	51	SP	19		4632	4106	1.32	0.65	1.05	1.2	1	20.5	8	0.39	1.01	0.7	21	0.231	0.743	0.503	0.58	0.014	0.084
1003	51.5	SP	19		4661	4135	1.32	0.65	1.05	1.2	1	20.4	8	0.39	1.01	0.7	21	0.230	0.738	0.501	0.58	0.014	0.084
1002.5	52	SP	19		4690	4164	1.32	0.64	1.05	1.2	1	20.3	8	0.39	1.01	0.7	21	0.229	0.733	0.498	0.58	0.014	0.084
1002	52.5	SP	19		4719	4193	1.32	0.64	1.05	1.2	1	20.3	8	0.39	1.01	0.7	21	0.228	0.728	0.496	0.58	0.014	0.084
1001.5	53	SP	26		4748	4222	1.32	0.64	1.05	1.2	1	27.6	8	0.39	1.01	0.8	28	0.385	0.723	0.494	0.99	0.011	0.066
1001	53.5	SP	26		4777	4251	1.32	0.64	1.05	1.2	1	27.5	8	0.39	1.01	0.8	28	0.381	0.718	0.492	0.98	0.011	0.066
1000.5	54	SP	26		4806	4280	1.32	0.63	1.05	1.2	1	27.4	8	0.39	1.01	0.8	28	0.377	0.713	0.490	0.97	0.011	0.066
1000	54.5	CL	6	YES	4835	4309	1.32	0.63	1.05	1.2	1	6.3	27	4.48	1.13	5.3	12	0.127	0.708	0.488	0.33	0.023	0.000
999.5	55	CL	6	YES	4864	4338	1.32	0.63	1.05	1.2	1	6.3	27	4.48	1.13	5.3	12	0.127	0.703	0.486	0.33	0.023	0.000
999	55.5	CL	6	YES	4893	4367	1.32	0.63	1.05	1.2	1	6.3	27	4.48	1.13	5.3	12	0.127	0.699	0.484	0.33	0.023	0.000
998.5	56	CL	6	YES	4922	4396	1.32	0.62	1.05	1.2	1	6.2	27	4.48	1.13	5.3	12	0.127	0.694	0.482	0.33	0.023	0.000
998	56.5	CL	6	YES	4951	4425	1.32	0.62	1.05	1.2	1	6.2	27	4.48	1.13	5.3	11	0.126	0.689	0.480	0.33	0.023	0.000
997.5	57	CL	8	YES	4980	4454	1.32	0.62	1.05	1.2	1	8.2	27	4.48	1.13	5.6	14	0.148	0.685	0.478	0.39	0.020	0.000
997	57.5	CL	8	YES	5009	4483	1.32	0.62	1.05	1.2	1	8.2	27	4.48	1.13	5.5	14	0.148	0.680	0.476	0.39	0.020	0.000
996.5	58	CL	8	YES	5038	4512	1.32	0.61	1.05	1.2	1	8.2	27	4.48	1.13	5.5	14	0.147	0.676	0.474	0.39	0.020	0.000
996	58.5	CL	8	YES	5067	4541	1.32	0.61	1.05	1.2	1	8.1	27	4.48	1.13	5.5	14	0.147	0.672	0.472	0.39	0.020	0.000
995.5	59	SP	38		5096	4570	1.32	0.61	1.05	1.2	1	38.5	5	0.00	1.00	0.0	39		0.668	0.470	2.00		
995	59.5	SP	38		5125	4599	1.32	0.61	1.05	1.2	1	38.4	5	0.00	1.00	0.0	38		0.663	0.468	2.00		
994.5	60	SP	38		5154	4628	1.32	0.61	1.05	1.2	1	38.2	5	0.00	1.00	0.0	38		0.659	0.466	2.00		
994	60.5	SP	38		5183	4657	1.32	0.60	1.05	1.2	1	38.1	5	0.00	1.00	0.0	38		0.655	0.464	2.00		
993.5	61	SP	38		5212	4686	1.32	0.60	1.05	1.2	1	38.0	5	0.00	1.00	0.0	38		0.651	0.462	2.00		
993	61.5	SP	38		5241	4715	1.32	0.60	1.05	1.2	1	37.8	5	0.00	1.00	0.0	38		0.647	0.460	2.00		
992.5	62	SP	38		5270	4744	1.32	0.60	1.05	1.2	1	37.7	5	0.00	1.00	0.0	38		0.644	0.458	2.00		
992	62.5	SP	38		5299	4773	1.32	0.59	1.05	1.2	1	37.5	5	0.00	1.00	0.0	38		0.640	0.456	2.00		
991.5	63	SP	38		5328	4802	1.32	0.59	1.05	1.2	1	37.4	5	0.00	1.00	0.0	37		0.636	0.455	2.00		
991	63.5	SP	50		5357	4831	1.32	0.59	1.05	1.2	1	49.0	5	0.00	1.00	0.1	49		0.632	0.453	2.00		
990.5	64	SP	50		5386	4860	1.32	0.59	1.05	1.2	1	48.8	5	0.00	1.00	0.1	49		0.629	0.451	2.00		
990	64.5	SP	50		5415	4889	1.32	0.59	1.05	1.2	1	48.7	5	0.00	1.00	0.1	49		0.625	0.450	2.00		
989.5	65	SP	50		5444	4918	1.32	0.58	1.05	1.2	1	48.5	5	0.00	1.00	0.1	49		0.622	0.448	2.00		
989	65.5	SP	50		5473	4947	1.32	0.58	1.05	1.2	1	48.3	5	0.00	1.00	0.1	48		0.619	0.446	2.00		
988.5	66	SP	50		5502	4976	1.32	0.58	1.05	1.2	1	48.1	5	0.00	1.00	0.1	48		0.616	0.445	2.00		
988	66.5	SP	50		5531	5005	1.32	0.58	1.05	1.2	1	48.0	5	0.00	1.00	0.1	48		0.612	0.443	2.00		
987.5	67	SP	50		5560	5034	1.32	0.57	1.05	1.2	1	47.8	5	0.00	1.00	0.1	48		0.609	0.442	2.00		
987	67.5	SP	50		5589	5063	1.32	0.57	1.05	1.2	1	47.6	5	0.00	1.00	0.1	48		0.606	0.440	2.00		
986.5	68	SP	50		5618	5092	1.32	0.57	1.05	1.2	1	47.5	5	0.00	1.00	0.1	48		0.603	0.439	2.00		
986	68.5	SP	50		5647	5121	1.32	0.57	1.05	1.2	1	47.3	5	0.00	1.00	0.1	47		0.600	0.438	2.00		
985.5	69	SP	50		5676	5150	1.32	0.57	1.05	1.2	1	47.1	5	0.00	1.00	0.1	47		0.597	0.436	2.00		
985	69.5	SP	50		5705	5179	1.32	0.56	1.05	1.2	1	47.0	5	0.00	1.00	0.1	47		0.595	0.435	2.00		
984.5	70	SP	50		5734	5208	1.32	0.56	1.05	1.2	1	46.8	5	0.00	1.00	0.1	47		0.592	0.433	2.00		
																							0.983

SPT Liquefaction Spreadsheet

JOB NAME	Prpoosed Temecula Hospital	Boring	GDI-1-A		
DATE	8/4/2010	*y*	120	pcf	
BY	CJZ	GW level	23.5	ft	
CHECKED BY		HHGL	15.9	ft	
DATE		GS Elevation	1051.5		
		LFFE	1057.4		

Magnitue	a max
6.84	0.88

MSF 1.27

Total Settlement 1.06 INCHES

Elevation (MSL)	Depth (feet)	Soil Type	Nfield	Boulanger and Idriss (2006)	σo' (psf) current	σo' (psf) HHGWL	C_E	C_N	C_B	C_S	C_R	$(N_1)_{60}$	Fines Correction			ΔN	$(N_1)_{60}$	CRR	Rd	CSR	FOS	SETTLEMENT (%)	SETTLEMENT (inches)
					psf	psf	energy	stress	5" diam	w/out liner	rod	interim Corr.	%fines	Alpha	Beta			1998 eq. <N=30					
1050.5	1	SP	15		120	828	1.32	1.75	1.05	1.2	0.75		5	0.00	1.00				1.000	**0.066**	2.00		
1050	1.5	SP	15		180	888	1.32	1.71	1.05	1.2	0.75		5	0.00	1.00				0.998	**0.092**	2.00		
1049.5	2	SP	15		240	948	1.32	1.68	1.05	1.2	0.75		5	0.00	1.00				0.997	**0.115**	2.00		
1049	2.5	SP	15		300	1008	1.32	1.64	1.05	1.2	0.75		5	0.00	1.00				0.996	**0.135**	2.00		
1048.5	3	SP	15		360	1068	1.32	1.61	1.05	1.2	0.75		5	0.00	1.00				0.995	**0.152**	2.00		
1048	3.5	SP	15		420	1128	1.32	1.57	1.05	1.2	0.75		5	0.00	1.00				0.994	**0.168**	2.00		
1047.5	4	SP	15		480	1188	1.32	1.54	1.05	1.2	0.75		5	0.00	1.00				0.993	**0.182**	2.00		
1047	4.5	SP	15		540	1248	1.32	1.51	1.05	1.2	0.75		5	0.00	1.00				0.991	**0.195**	2.00		
1046.5	5	SP	15		600	1308	1.32	1.48	1.05	1.2	0.75		5	0.00	1.00				0.990	**0.206**	2.00		
1046	5.5	SP	15		660	1368	1.32	1.46	1.05	1.2	0.75		5	0.00	1.00				0.989	**0.217**	2.00		
1045.5	6	SP	15		720	1428	1.32	1.43	1.05	1.2	0.75		5	0.00	1.00				0.988	**0.226**	2.00		
1045	6.5	SP	15		780	1488	1.32	1.40	1.05	1.2	0.75		5	0.00	1.00				0.987	**0.235**	2.00		
1044.5	7	SP	15		840	1548	1.32	1.38	1.05	1.2	0.75		5	0.00	1.00				0.986	**0.243**	2.00		
1044	7.5	ML	15		900	1608	1.32	1.35	1.05	1.2	0.75		35	5.00	1.20				0.985	**0.250**	2.00		
1043.5	8	ML	15		960	1668	1.32	1.33	1.05	1.2	0.75		35	5.00	1.20				0.983	**0.257**	2.00		
1043	8.5	SP	26		1020	1728	1.32	1.31	1.05	1.2	0.75		15	2.50	1.05				0.982	**0.263**	2.00		
1042.5	9	SP	26		1080	1788	1.32	1.29	1.05	1.2	0.75		5	0.00	1.00				0.981	**0.269**	2.00		
1042	9.5	SP	26		1140	1848	1.32	1.27	1.05	1.2	0.75		5	0.00	1.00				0.980	**0.275**	2.00		
1041.5	10	SP	26		1200	1908	1.32	1.24	1.05	1.2	0.75		5	0.00	1.00				0.979	**0.280**	2.00		
1041	10.5	SP	26		1260	1968	1.32	1.23	1.05	1.2	0.75		5	0.00	1.00				0.978	**0.284**	2.00		
1040.5	11	SP	26		1320	2028	1.32	1.21	1.05	1.2	0.75		5	0.00	1.00				0.977	**0.289**	2.00		
1040	11.5	SP	26		1380	2088	1.32	1.19	1.05	1.2	0.75		5	0.00	1.00				0.976	**0.293**	2.00		
1039.5	12	SP	26		1440	2148	1.32	1.17	1.05	1.2	0.75		5	0.00	1.00				0.975	**0.297**	2.00		
1039	12.5	SP	26		1500	2208	1.32	1.15	1.05	1.2	0.75		5	0.00	1.00				0.974	**0.300**	2.00		
1038.5	13	SP	26		1560	2268	1.32	1.14	1.05	1.2	0.85		5	0.00	1.00				0.973	**0.304**	2.00		
1038	13.5	SP	26		1620	2328	1.32	1.12	1.05	1.2	0.85		5	0.00	1.00				0.972	**0.307**	2.00		
1037.5	14	SP	26		1680	2388	1.32	1.10	1.05	1.2	0.85		5	0.00	1.00				0.971	**0.310**	2.00		
1037	14.5	SP	26		1740	2448	1.32	1.09	1.05	1.2	0.85		5	0.00	1.00				0.970	**0.313**	2.00		
1036.5	15	SP	26		1800	2508	1.32	1.07	1.05	1.2	0.85		5	0.00	1.00				0.969	**0.316**	2.00		
1036	15.5	ML	14		1860	2568	1.32	1.06	1.05	1.2	0.85		35	5.00	1.20				0.967	**0.318**	2.00		
1035.5	16	ML	14		1920	2622	1.32	1.04	1.05	1.2	0.85	20.7	35	5.00	1.20	9.1	**30**	0.454	0.966	**0.321**	1.79	0.000	0.000
1035	16.5	ML	14		1980	2651	1.32	1.03	1.05	1.2	0.85	20.4	35	5.00	1.20	9.1	**29**	0.434	0.965	**0.327**	1.68	0.000	0.000
1034.5	17	ML	14		2040	2680	1.32	1.02	1.05	1.2	0.85	20.1	35	5.00	1.20	9.0	**29**	0.417	0.964	**0.333**	1.58	0.000	0.001
1034	17.5	ML	14		2100	2709	1.32	1.00	1.05	1.2	0.85	19.9	35	5.00	1.20	9.0	**29**	0.403	0.963	**0.339**	1.50	0.000	0.001
1033.5	18	ML	10		2160	2738	1.32	0.99	1.05	1.2	0.85	14.0	35	5.00	1.20	7.8	**22**	0.239	0.962	**0.345**	0.88	0.014	0.084
1033	18.5	ML	10		2220	2767	1.32	0.98	1.05	1.2	0.85	13.8	35	5.00	1.20	7.8	**22**	0.236	0.961	**0.350**	0.85	0.014	0.084
1032.5	19	ML	10		2280	2796	1.32	0.97	1.05	1.2	0.85	13.7	35	5.00	1.20	7.7	**21**	0.233	0.959	**0.355**	0.83	0.014	0.084
1032	19.5	ML	10		2340	2825	1.32	0.95	1.05	1.2	0.85	13.5	35	5.00	1.20	7.7	**21**	0.231	0.958	**0.360**	0.81	0.014	0.084
1031.5	20	ML	10		2400	2854	1.32	0.94	1.05	1.2	0.95	14.9	35	5.00	1.20	8.0	**23**	0.255	0.957	**0.365**	0.88	0.014	0.084
1031	20.5	ML	10		2460	2883	1.32	0.93	1.05	1.2	0.95	14.7	35	5.00	1.20	7.9	**23**	0.252	0.956	**0.370**	0.86	0.014	0.084
1030.5	21	ML	10		2520	2912	1.32	0.92	1.05	1.2	0.95	14.5	35	5.00	1.20	7.9	**22**	0.249	0.954	**0.375**	0.84	0.014	0.084
1030	21.5	ML	10		2580	2941	1.32	0.91	1.05	1.2	0.95	14.4	35	5.00	1.20	7.9	**22**	0.246	0.953	**0.380**	0.82	0.014	0.084
1029.5	22	SM	10		2640	2970	1.32	0.90	1.05	1.2	0.95	14.2	15	2.50	1.05	3.2	**17**	0.185	0.951	**0.384**	0.61	0.016	0.096
1029	22.5	SM	10		2700	2999	1.32	0.89	1.05	1.2	0.95	14.0	15	2.50	1.05	3.2	**17**	0.183	0.950	**0.388**	0.60	0.016	0.096
1028.5	23	SM	10		2760	3028	1.32	0.88	1.05	1.2	0.95	13.9	15	2.50	1.05	3.2	**17**	0.181	0.948	**0.393**	0.58	0.016	0.096
1028	23.5	SM	10		2820	3057	1.32	0.87	1.05	1.2	0.95	13.7	15	2.50	1.05	3.2	**17**	0.180	0.947	**0.397**	0.57	0.016	0.096
1027.5	24	ML	6	YES	2849	3086	1.32	0.86	1.05	1.2	0.95	8.2	35	5.00	1.20	6.6	**15**	0.158	0.945	**0.401**	0.50	0.020	0.000
1027	24.5	ML	6	YES	2878	3115	1.32	0.86	1.05	1.2	0.95	8.1	35	5.00	1.20	6.6	**15**	0.158	0.944	**0.404**	0.49	0.020	0.000
1026.5	25	ML	6	YES	2907	3144	1.32	0.85	1.05	1.2	0.95	8.1	35	5.00	1.20	6.6	**15**	0.157	0.942	**0.408**	0.49	0.020	0.000
1026	25.5	ML	6	YES	2936	3173	1.32	0.85	1.05	1.2	0.95	8.1	35	5.00	1.20	6.6	**15**	0.157	0.940	**0.412**	0.48	0.020	0.000
1025.5	26	ML	6	YES	2965	3202	1.32	0.85	1.05	1.2	0.95	8.0	35	5.00	1.20	6.6	**15**	0.156	0.938	**0.415**	0.48	0.020	0.000
1025	26.5	ML	6	YES	2994	3231	1.32	0.84	1.05	1.2	0.95	8.0	35	5.00	1.20	6.6	**15**	0.156	0.936	**0.418**	0.47	0.020	0.000
1024.5	27	ML	6	YES	3023	3260	1.32	0.84	1.05	1.2	0.95	7.9	35	5.00	1.20	6.6	**15**	0.155	0.934	**0.422**	0.47	0.020	0.000
1024	27.5	ML	6	YES	3052	3289	1.32	0.83	1.05	1.2	0.95	7.9	35	5.00	1.20	6.6	**14**	0.155	0.932	**0.425**	0.46	0.020	0.000
1023.5	28	ML	6	YES	3081	3318	1.32	0.83	1.05	1.2	0.95	7.9	35	5.00	1.20	6.6	**14**	0.154	0.930	**0.428**	0.46	0.020	0.000
1023	28.5	ML	6	YES	3110	3347	1.32	0.82	1.05	1.2	0.95	7.8	11	1.28	1.03	1.5	**9**	0.107	0.928	**0.430**	0.31	0.027	0.000
1022.5	29	ML	6	YES	3139	3376	1.32	0.82	1.05	1.2	0.95	7.8	11	1.28	1.03	1.5	**9**	0.107	0.925	**0.433**	0.31	0.027	0.000
1022	29.5	ML	6	YES	3168	3405	1.32	0.82	1.05	1.2	0.95	7.7	35	5.00	1.20	6.5	**14**	0.153	0.923	**0.436**	0.44	0.020	0.000

1021.5	30	ML	6	YES	3197	3434	1.32	0.81	1.05	1.2	0.95	7.7	35	5.00	1.20	6.5	14	0.152	0.921	0.438	0.44	0.020	0.000
1021	30.5	SP	32		3226	3463	1.32	0.81	1.05	1.2	0.95	40.8	5	0.00	1.00	0.1	41		0.918	0.441	2.00		
1020.5	31	SP	32		3255	3492	1.32	0.80	1.05	1.2	0.95	40.6	5	0.00	1.00	0.1	41		0.915	0.443	2.00		
1020	31.5	SP	32		3284	3521	1.32	0.80	1.05	1.2	0.95	40.4	5	0.00	1.00	0.1	40		0.913	0.445	2.00		
1019.5	32	SP	32		3313	3550	1.32	0.80	1.05	1.2	0.95	40.2	5	0.00	1.00	0.1	40		0.910	0.447	2.00		
1019	32.5	SP	26		3342	3579	1.32	0.79	1.05	1.2	0.95	32.5	5	0.00	1.00	0.0	33		0.907	0.449	2.00		
1018.5	33	SP	26		3371	3608	1.32	0.79	1.05	1.2	1	34.1	5	0.00	1.00	0.0	34		0.904	0.450	2.00		
1018	33.5	SP	26		3400	3637	1.32	0.78	1.05	1.2	1	33.9	5	0.00	1.00	0.0	34		0.901	0.452	2.00		
1017.5	34	SP	26		3429	3666	1.32	0.78	1.05	1.2	1	33.7	5	0.00	1.00	0.0	34		0.897	0.453	2.00		
1017	34.5	SP	26		3458	3695	1.32	0.78	1.05	1.2	1	33.6	5	0.00	1.00	0.0	34		0.894	0.455	2.00		
1016.5	35	SP	26		3487	3724	1.32	0.77	1.05	1.2	1	33.4	5	0.00	1.00	0.0	33		0.891	0.456	2.00		
1016	35.5	SP	26		3516	3753	1.32	0.77	1.05	1.2	1	33.2	5	0.00	1.00	0.0	33		0.887	0.457	2.00		
1015.5	36	SP	26		3545	3782	1.32	0.77	1.05	1.2	1	33.1	5	0.00	1.00	0.0	33		0.883	0.458	2.00		
1015	36.5	SP	26		3574	3811	1.32	0.76	1.05	1.2	1	32.9	5	0.00	1.00	0.0	33		0.880	0.459	2.00		
1014.5	37	SP	26		3603	3840	1.32	0.76	1.05	1.2	1	32.8	5	0.00	1.00	0.0	33		0.876	0.460	2.00		
1014	37.5	SP	26		3632	3869	1.32	0.75	1.05	1.2	1	32.6	5	0.00	1.00	0.0	33		0.872	0.461	2.00		
1013.5	38	SP	26		3661	3898	1.32	0.75	1.05	1.2	1	32.5	14	2.30	1.04	3.7	36		0.868	0.461	2.00		
1013	38.5	SP	22		3690	3927	1.32	0.75	1.05	1.2	1	27.3	14	2.30	1.04	3.5	31		0.864	0.461	2.00		
1012.5	39	SP	22		3719	3956	1.32	0.74	1.05	1.2	1	27.2	14	2.30	1.04	3.5	31		0.860	0.462	2.00		
1012	39.5	SP	22		3748	3985	1.32	0.74	1.05	1.2	1	27.1	14	2.30	1.04	3.5	31		0.855	0.462	2.00		
1011.5	40	SP	22		3777	4014	1.32	0.74	1.05	1.2	1	27.0	14	2.30	1.04	3.5	30		0.851	0.462	2.00		
1011	40.5	SM	25		3806	4043	1.32	0.73	1.05	1.2	1	30.5	14	2.30	1.04	3.6	34		0.847	0.462	2.00		
1010.5	41	SM	25		3835	4072	1.32	0.73	1.05	1.2	1	30.4	15	2.50	1.05	4.0	34		0.842	0.462	2.00		
1010	41.5	SM	25		3864	4101	1.32	0.73	1.05	1.2	1	30.2	15	2.50	1.05	4.0	34		0.837	0.462	2.00		
1009.5	42	SM	25		3893	4130	1.32	0.72	1.05	1.2	1	30.1	15	2.50	1.05	3.9	34		0.833	0.461	2.00		
1009	42.5	SM	25		3922	4159	1.32	0.72	1.05	1.2	1	30.0	15	2.50	1.05	3.9	34		0.828	0.461	2.00		
1008.5	43	SP	31		3951	4188	1.32	0.72	1.05	1.2	1	37.0	15	2.50	1.05	4.3	41		0.823	0.461	2.00		
1008	43.5	SP	31		3980	4217	1.32	0.71	1.05	1.2	1	36.8	15	2.50	1.05	4.3	41		0.818	0.460	2.00		
1007.5	44	SP	31		4009	4246	1.32	0.71	1.05	1.2	1	36.7	15	2.50	1.05	4.3	41		0.814	0.459	2.00		
1007	44.5	SP	31		4038	4275	1.32	0.71	1.05	1.2	1	36.5	15	2.50	1.05	4.3	41		0.809	0.459	2.00		
1006.5	45	SP	31		4067	4304	1.32	0.70	1.05	1.2	1	36.3	15	2.50	1.05	4.2	41		0.804	0.458	2.00		
1006	45.5	SP	30		4096	4333	1.32	0.70	1.05	1.2	1	35.0	15	2.50	1.05	4.2	39		0.799	0.457	2.00		
1005.5	46	SP	30		4125	4362	1.32	0.70	1.05	1.2	1	34.9	15	2.50	1.05	4.2	39		0.794	0.456	2.00		
1005	46.5	SP	30		4154	4391	1.32	0.70	1.05	1.2	1	34.7	15	2.50	1.05	4.2	39		0.788	0.455	2.00		
1004.5	47	SP	30		4183	4420	1.32	0.69	1.05	1.2	1	34.6	15	2.50	1.05	4.2	39		0.783	0.454	2.00		
1004	47.5	SP	30		4212	4449	1.32	0.69	1.05	1.2	1	34.4	15	2.50	1.05	4.2	39		0.778	0.453	2.00		
1003.5	48	SP	27		4241	4478	1.32	0.69	1.05	1.2	1	30.8	15	2.50	1.05	4.0	35		0.773	0.452	2.00		
1003	48.5	SP	27		4270	4507	1.32	0.68	1.05	1.2	1	30.7	15	2.50	1.05	4.0	35		0.768	0.450	2.00		
1002.5	49	SP	27		4299	4536	1.32	0.68	1.05	1.2	1	30.6	15	2.50	1.05	4.0	35		0.763	0.449	2.00		
1002	49.5	SP	27		4328	4565	1.32	0.68	1.05	1.2	1	30.4	15	2.50	1.05	4.0	34		0.758	0.448	2.00		
1001.5	50	SP	27		4357	4594	1.32	0.68	1.05	1.2	1	30.3	15	2.50	1.05	4.0	34		0.753	0.446	2.00		
1001	50.5	SP	31		4386	4623	1.32	0.67	1.05	1.2	1	34.7	15	2.50	1.05	4.2	39		0.748	0.445	2.00		
1000.5	51	SP	31		4415	4652	1.32	0.67	1.05	1.2	1	34.5	15	2.50	1.05	4.2	39		0.743	0.444	2.00		
1000	51.5	SP	31		4444	4681	1.32	0.67	1.05	1.2	1	34.4	15	2.50	1.05	4.2	39		0.738	0.442	2.00		
999.5	52	SP	31		4473	4710	1.32	0.66	1.05	1.2	1	34.2	15	2.50	1.05	4.1	38		0.733	0.441	2.00		
999	52.5	SP	31		4502	4739	1.32	0.66	1.05	1.2	1	34.1	15	2.50	1.05	4.1	38		0.728	0.439	2.00		
998.5	53	SP	50		4531	4768	1.32	0.66	1.05	1.2	1	54.8	15	2.50	1.05	5.1	60		0.723	0.438	2.00		
998	53.5	SP	50		4560	4797	1.32	0.66	1.05	1.2	1	54.5	15	2.50	1.05	5.1	60		0.718	0.436	2.00		
997.5	54	SP	50		4589	4826	1.32	0.65	1.05	1.2	1	54.3	15	2.50	1.05	5.1	59		0.713	0.435	2.00		
997	54.5	SP	50		4618	4855	1.32	0.65	1.05	1.2	1	54.1	15	2.50	1.05	5.1	59		0.708	0.433	2.00		
996.5	55	SP	50		4647	4884	1.32	0.65	1.05	1.2	1	53.9	15	2.50	1.05	5.1	59		0.703	0.432	2.00		
996	55.5	SP	50		4676	4913	1.32	0.65	1.05	1.2	1	53.7	15	2.50	1.05	5.1	59		0.699	0.430	2.00		
995.5	56	SP	50		4705	4942	1.32	0.64	1.05	1.2	1	53.4	15	2.50	1.05	5.1	59		0.694	0.428	2.00		
995	56.5	SP	50		4734	4971	1.32	0.64	1.05	1.2	1	53.2	15	2.50	1.05	5.1	58		0.689	0.427	2.00		
994.5	57	SP	50		4763	5000	1.32	0.64	1.05	1.2	1	53.0	15	2.50	1.05	5.0	58		0.685	0.425	2.00		
994	57.5	SP	50		4792	5029	1.32	0.63	1.05	1.2	1	52.8	15	2.50	1.05	5.0	58		0.680	0.424	2.00		
993.5	58	SP	50		4821	5058	1.32	0.63	1.05	1.2	1	52.6	15	2.50	1.05	5.0	58		0.676	0.422	2.00		
993	58.5	SP	50		4850	5087	1.32	0.63	1.05	1.2	1	52.4	15	2.50	1.05	5.0	57		0.672	0.421	2.00		
992.5	59	SP	50		4879	5116	1.32	0.63	1.05	1.2	1	52.2	15	2.50	1.05	5.0	57		0.668	0.419	2.00		
992	59.5	SP	50		4908	5145	1.32	0.63	1.05	1.2	1	52.0	15	2.50	1.05	5.0	57		0.663	0.418	2.00		
991.5	60	SP	50		4937	5174	1.32	0.62	1.05	1.2	1	51.8	15	2.50	1.05	5.0	57		0.659	0.417	2.00		
991	60.5	SP	50		4966	5203	1.32	0.62	1.05	1.2	1	51.6	15	2.50	1.05	5.0	57		0.655	0.415	2.00		
990.5	61	SP	50		4995	5232	1.32	0.62	1.05	1.2	1	51.4	15	2.50	1.05	5.0	56		0.651	0.414	2.00		
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																							1.057

SPT Liquefaction Spreadsheet

JOB NAME	Prpoosed Temecula Hospital	Boring	GDI-2		
DATE	6/4/2010	*y*	120	pcf	
BY	CJZ	GW level	22	ft	
CHECKED BY		HHGL	16.4	ft	
DATE		GS Elevation	1051	(assumed)	
		LFFE	1057.4		
			Magnitue	a max	
			6.84	0.88	
		MSF	1.27		

Total Settlement 0.76 INCHES

Elevation (MSL)	Depth (feet)	Soil Type	Nfield	Boulanger and Idriss (2006)	σo' (psf) current	σo' (psf) HHGWL	C_E	C_N	C_B	C_S	C_R	$(N_1)_{60}$	Fines Correction			ΔN	$(N_1)_{60}$	CRR 1998 eq.	Rd	CSR	FOS	SETTLEMENT (%)	SETTLEMENT (inches)
					psf	psf	energy	stress	5" diam	w/out liner	rod	interim Corr.	%fines	Alpha	Beta		<N=30						
1050	1	SP	10		120	888	1.32	1.75	1.05	1.2	0.75		5	0.00	1.00				1.000	**0.061**	2.00		
1049.5	1.5	SP	10		180	948	1.32	1.71	1.05	1.2	0.75		5	0.00	1.00				0.998	**0.086**	2.00		
1049	2	SP	10		240	1008	1.32	1.68	1.05	1.2	0.75		5	0.00	1.00				0.997	**0.108**	2.00		
1048.5	2.5	SP	10		300	1068	1.32	1.64	1.05	1.2	0.75		5	0.00	1.00				0.996	**0.127**	2.00		
1048	3	SP	10		360	1128	1.32	1.61	1.05	1.2	0.75		5	0.00	1.00				0.995	**0.144**	2.00		
1047.5	3.5	SP	10		420	1188	1.32	1.57	1.05	1.2	0.75		5	0.00	1.00				0.994	**0.160**	2.00		
1047	4	SP	10		480	1248	1.32	1.54	1.05	1.2	0.75		5	0.00	1.00				0.993	**0.173**	2.00		
1046.5	4.5	SP	10		540	1308	1.32	1.51	1.05	1.2	0.75		5	0.00	1.00				0.991	**0.186**	2.00		
1046	5	SP	10		600	1368	1.32	1.48	1.05	1.2	0.75		5	0.00	1.00				0.990	**0.197**	2.00		
1045.5	5.5	SP	10		660	1428	1.32	1.46	1.05	1.2	0.75		5	0.00	1.00				0.989	**0.208**	2.00		
1045	6	SP	10		720	1488	1.32	1.43	1.05	1.2	0.75		5	0.00	1.00				0.988	**0.217**	2.00		
1044.5	6.5	SP	10		780	1548	1.32	1.40	1.05	1.2	0.75		5	0.00	1.00				0.987	**0.226**	2.00		
1044	7	SP	10		840	1608	1.32	1.38	1.05	1.2	0.75		5	0.00	1.00				0.986	**0.234**	2.00		
1043.5	7.5	ML	10		900	1668	1.32	1.35	1.05	1.2	0.75		35	5.00	1.20				0.985	**0.241**	2.00		
1043	8	ML	10		960	1728	1.32	1.33	1.05	1.2	0.75		35	5.00	1.20				0.983	**0.248**	2.00		
1042.5	8.5	SP	10		1020	1788	1.32	1.31	1.05	1.2	0.75		5	0.00	1.00				0.982	**0.254**	2.00		
1042	9	SP	10		1080	1848	1.32	1.29	1.05	1.2	0.75		5	0.00	1.00				0.981	**0.260**	2.00		
1041.5	9.5	SP	10		1140	1908	1.32	1.27	1.05	1.2	0.75		5	0.00	1.00				0.980	**0.266**	2.00		
1041	10	ML	10	YES	1200	1968	1.32	1.24	1.05	1.2	0.75		5	0.00	1.00				0.979	**0.271**	2.00		
1040.5	10.5	ML	10	YES	1260	2028	1.32	1.23	1.05	1.2	0.75		5	0.00	1.00				0.978	**0.276**	2.00		
1040	11	ML	10	YES	1320	2088	1.32	1.21	1.05	1.2	0.75		5	0.00	1.00				0.977	**0.280**	2.00		
1039.5	11.5	ML	10	YES	1380	2148	1.32	1.19	1.05	1.2	0.75		5	0.00	1.00				0.976	**0.285**	2.00		
1039	12	ML	10	YES	1440	2208	1.32	1.17	1.05	1.2	0.75		5	0.00	1.00				0.975	**0.289**	2.00		
1038.5	12.5	ML	10	YES	1500	2268	1.32	1.15	1.05	1.2	0.75		50	5.00	1.20				0.974	**0.292**	2.00		
1038	13	ML	10	YES	1560	2328	1.32	1.14	1.05	1.2	0.85		50	5.00	1.20				0.973	**0.296**	2.00		
1037.5	13.5	ML	10	YES	1620	2388	1.32	1.12	1.05	1.2	0.85		50	5.00	1.20				0.972	**0.299**	2.00		
1037	14	ML	10	YES	1680	2448	1.32	1.10	1.05	1.2	0.85		50	5.00	1.20				0.971	**0.302**	2.00		
1036.5	14.5	ML	10	YES	1740	2508	1.32	1.09	1.05	1.2	0.85		50	5.00	1.20				0.970	**0.305**	2.00		
1036	15	ML	10	YES	1800	2568	1.32	1.07	1.05	1.2	0.85		50	5.00	1.20				0.969	**0.308**	2.00		
1035.5	15.5	ML	11		1860	2628	1.32	1.06	1.05	1.2	0.85		48	5.00	1.20				0.967	**0.311**	2.00		
1035	16	ML	11		1920	2688	1.32	1.04	1.05	1.2	0.85		48	5.00	1.20				0.966	**0.313**	2.00		
1034.5	16.5	ML	11		1980	2742	1.32	1.03	1.05	1.2	0.85	16.0	48	5.00	1.20	8.2	**24**	0.277	0.965	**0.316**	1.11	0.002	0.010
1034	17	ML	11		2040	2771	1.32	1.02	1.05	1.2	0.85	15.8	48	5.00	1.20	8.2	**24**	0.273	0.964	**0.322**	1.07	0.002	0.010
1033.5	17.5	ML	11		2100	2800	1.32	1.00	1.05	1.2	0.85	15.6	48	5.00	1.20	8.1	**24**	0.269	0.963	**0.328**	1.04	0.003	0.017
1033	18	ML	9		2160	2829	1.32	0.99	1.05	1.2	0.85	12.6	48	5.00	1.20	7.5	**20**	0.217	0.962	**0.333**	0.82	0.014	0.084
1032.5	18.5	ML	9		2220	2858	1.32	0.98	1.05	1.2	0.85	12.4	48	5.00	1.20	7.5	**20**	0.215	0.961	**0.339**	0.80	0.015	0.090
1032	19	ML	9		2280	2887	1.32	0.97	1.05	1.2	0.85	12.3	48	5.00	1.20	7.5	**20**	0.212	0.959	**0.344**	0.78	0.015	0.090
1031.5	19.5	ML	9		2340	2916	1.32	0.95	1.05	1.2	0.85	12.1	48	5.00	1.20	7.4	**20**	0.210	0.958	**0.349**	0.76	0.015	0.090
1031	20	ML	9		2400	2945	1.32	0.94	1.05	1.2	0.95	13.4	48	5.00	1.20	7.7	**21**	0.229	0.957	**0.354**	0.82	0.014	0.084
1030.5	20.5	ML	12		2460	2974	1.32	0.93	1.05	1.2	0.95	17.7	48	5.00	1.20	8.5	**26**	0.317	0.956	**0.359**	1.12	0.001	0.005
1030	21	ML	12		2520	3003	1.32	0.92	1.05	1.2	0.95	17.4	48	5.00	1.20	8.5	**26**	0.312	0.954	**0.364**	1.08	0.002	0.010
1029.5	21.5	ML	12		2580	3032	1.32	0.91	1.05	1.2	0.95	17.2	48	5.00	1.20	8.4	**26**	0.306	0.953	**0.368**	1.05	0.003	0.017
1029	22	SP	32		2640	3061	1.32	0.90	1.05	1.2	0.95	45.4	5	0.00	1.00	0.1	**46**		0.951	**0.373**	2.00		
1028.5	22.5	SP	32		2669	3090	1.32	0.89	1.05	1.2	0.95	45.2	5	0.00	1.00	0.1	**45**		0.950	**0.377**	2.00		
1028	23	SP	32		2698	3119	1.32	0.89	1.05	1.2	0.95	44.9	5	0.00	1.00	0.1	**45**		0.948	**0.381**	2.00		
1027.5	23.5	SP	32		2727	3148	1.32	0.88	1.05	1.2	0.95	44.7	5	0.00	1.00	0.1	**45**		0.947	**0.385**	2.00		
1027	24	SP	32		2756	3177	1.32	0.88	1.05	1.2	0.95	44.5	5	0.00	1.00	0.1	**45**		0.945	**0.389**	2.00		
1026.5	24.5	MH	2	YES	2785	3206	1.32	0.87	1.05	1.2	0.95	2.8	35	5.00	1.20	5.6	**8**	0.099	0.944	**0.393**	0.32	0.028	0.000
1026	25	MH	2	YES	2814	3235	1.32	0.87	1.05	1.2	0.95	2.7	35	5.00	1.20	5.5	**8**	0.098	0.942	**0.397**	0.31	0.028	0.000
1025.5	25.5	MH	2	YES	2843	3264	1.32	0.86	1.05	1.2	0.95	2.7	35	5.00	1.20	5.5	**8**	0.098	0.940	**0.400**	0.31	0.028	0.000
1025	26	MH	2	YES	2872	3293	1.32	0.86	1.05	1.2	0.95	2.7	35	5.00	1.20	5.5	**8**	0.098	0.938	**0.404**	0.31	0.028	0.000
1024.5	26.5	MH	2	YES	2901	3322	1.32	0.86	1.05	1.2	0.95	2.7	35	5.00	1.20	5.5	**8**	0.098	0.936	**0.407**	0.30	0.028	0.000
1024	27	MH	2	YES	2930	3351	1.32	0.85	1.05	1.2	0.95	2.7	35	5.00	1.20	5.5	**8**	0.098	0.934	**0.410**	0.30	0.028	0.000
1023.5	27.5	MH	2	YES	2959	3380	1.32	0.85	1.05	1.2	0.95	2.7	35	5.00	1.20	5.5	**8**	0.098	0.932	**0.413**	0.30	0.028	0.000
1023	28	MH	2	YES	2988	3409	1.32	0.84	1.05	1.2	0.95	2.7	35	5.00	1.20	5.5	**8**	0.098	0.930	**0.416**	0.30	0.028	0.000
1022.5	28.5	SP	52		3017	3438	1.32	0.84	1.05	1.2	0.95	68.8	5	0.00	1.00	0.1	**69**		0.928	**0.419**	2.00		
1022	29	SP	52		3046	3467	1.32	0.83	1.05	1.2	0.95	68.5	5	0.00	1.00	0.1	**69**		0.925	**0.422**	2.00		
1021.5	29.5	SP	52		3075	3496	1.32	0.83	1.05	1.2	0.95	68.1	5	0.00	1.00	0.1	**68**		0.923	**0.424**	2.00		

1021	30	SP	27		3104	3525	1.32	0.82	1.05	1.2	0.95	35.2	5	0.00	1.00	0.0	35		0.921	0.427	2.00		
1020.5	30.5	SP	27		3133	3554	1.32	0.82	1.05	1.2	0.95	35.0	5	0.00	1.00	0.0	35		0.918	0.429	2.00		
1020	31	SP	27		3162	3583	1.32	0.82	1.05	1.2	0.95	34.8	5	0.00	1.00	0.0	35		0.915	0.432	2.00		
1019.5	31.5	SP	27		3191	3612	1.32	0.81	1.05	1.2	0.95	34.7	5	0.00	1.00	0.0	35		0.913	0.434	2.00		
1019	32	SP	27		3220	3641	1.32	0.81	1.05	1.2	0.95	34.5	5	0.00	1.00	0.0	35		0.910	0.436	2.00		
1018.5	32.5	SP	27		3249	3670	1.32	0.80	1.05	1.2	0.95	34.3	5	0.00	1.00	0.0	34		0.907	0.438	2.00		
1018	33	SP	16		3278	3699	1.32	0.80	1.05	1.2	1	21.3	11	1.35	1.03	2.0	23	0.261	0.904	0.439	0.75	0.014	0.084
1017.5	33.5	SP	16		3307	3728	1.32	0.80	1.05	1.2	1	21.2	11	1.35	1.03	2.0	23	0.259	0.901	0.441	0.74	0.014	0.084
1017	34	SP	16		3336	3757	1.32	0.79	1.05	1.2	1	21.1	11	1.35	1.03	1.9	23	0.257	0.897	0.443	0.74	0.014	0.084
1016.5	34.5	SP	42		3365	3786	1.32	0.79	1.05	1.2	1	55.1	11	1.35	1.03	2.9	58		0.894	0.444	2.00		
1016	35	SP	42		3394	3815	1.32	0.78	1.05	1.2	1	54.8	11	1.35	1.03	2.9	58		0.891	0.445	2.00		
1015.5	35.5	SP	42		3423	3844	1.32	0.78	1.05	1.2	1	54.5	5	0.00	1.00	0.1	55		0.887	0.446	2.00		
1015	36	SP	42		3452	3873	1.32	0.78	1.05	1.2	1	54.3	5	0.00	1.00	0.1	54		0.883	0.447	2.00		
1014.5	36.5	SP	42		3481	3902	1.32	0.77	1.05	1.2	1	54.0	5	0.00	1.00	0.1	54		0.880	0.448	2.00		
1014	37	SP	42		3510	3931	1.32	0.77	1.05	1.2	1	53.8	5	0.00	1.00	0.1	54		0.876	0.449	2.00		
1013.5	37.5	SP	50		3539	3960	1.32	0.77	1.05	1.2	1	63.7	5	0.00	1.00	0.1	64		0.872	0.450	2.00		
1013	38	SP	50		3568	3989	1.32	0.76	1.05	1.2	1	63.4	5	0.00	1.00	0.1	63		0.868	0.451	2.00		
1012.5	38.5	SP	50		3597	4018	1.32	0.76	1.05	1.2	1	63.1	5	0.00	1.00	0.1	63		0.864	0.451	2.00		
1012	39	SP	50		3626	4047	1.32	0.76	1.05	1.2	1	62.8	5	0.00	1.00	0.1	63		0.860	0.451	2.00		
1011.5	39.5	SP	50		3655	4076	1.32	0.75	1.05	1.2	1	62.5	5	0.00	1.00	0.1	63		0.855	0.452	2.00		
1011	40	SP	50		3684	4105	1.32	0.75	1.05	1.2	1	62.2	5	0.00	1.00	0.1	62		0.851	0.452	2.00		
1010.5	40.5	SP	50		3713	4134	1.32	0.74	1.05	1.2	1	61.9	5	0.00	1.00	0.1	62		0.847	0.452	2.00		
1010	41	SP	50		3742	4163	1.32	0.74	1.05	1.2	1	61.6	5	0.00	1.00	0.1	62		0.842	0.452	2.00		
1009.5	41.5	SP	50		3771	4192	1.32	0.74	1.05	1.2	1	61.3	5	0.00	1.00	0.1	61		0.837	0.452	2.00		
1009	42	SP	50		3800	4221	1.32	0.73	1.05	1.2	1	61.1	5	0.00	1.00	0.1	61		0.833	0.452	2.00		
1008.5	42.5	SP	50		3829	4250	1.32	0.73	1.05	1.2	1	60.8	5	0.00	1.00	0.1	61		0.828	0.451	2.00		
1008	43	SP	50		3858	4279	1.32	0.73	1.05	1.2	1	60.5	5	0.00	1.00	0.1	61		0.823	0.451	2.00		
1007.5	43.5	SP	50		3887	4308	1.32	0.72	1.05	1.2	1	60.2	5	0.00	1.00	0.1	60		0.818	0.450	2.00		
1007	44	SP	50		3916	4337	1.32	0.72	1.05	1.2	1	60.0	5	0.00	1.00	0.1	60		0.814	0.450	2.00		
1006.5	44.5	SP	50		3945	4366	1.32	0.72	1.05	1.2	1	59.7	5	0.00	1.00	0.1	60		0.809	0.449	2.00		
1006	45	SP	50		3974	4395	1.32	0.71	1.05	1.2	1	59.4	5	0.00	1.00	0.1	60		0.804	0.448	2.00		
1005.5	45.5	SP	50		4003	4424	1.32	0.71	1.05	1.2	1	59.2	5	0.00	1.00	0.1	59		0.799	0.448	2.00		
1005	46	SP	50		4032	4453	1.32	0.71	1.05	1.2	1	58.9	5	0.00	1.00	0.1	59		0.794	0.447	2.00		
1004.5	46.5	SP	50		4061	4482	1.32	0.71	1.05	1.2	1	58.7	5	0.00	1.00	0.1	59		0.788	0.446	2.00		
1004	47	SP	50		4090	4511	1.32	0.70	1.05	1.2	1	58.4	5	0.00	1.00	0.1	58		0.783	0.445	2.00		
1003.5	47.5	SP	50		4119	4540	1.32	0.70	1.05	1.2	1	58.1	5	0.00	1.00	0.1	58		0.778	0.444	2.00		
1003	48	SP	50		4148	4569	1.32	0.70	1.05	1.2	1	57.9	5	0.00	1.00	0.1	58		0.773	0.443	2.00		
1002.5	48.5	SP	50		4177	4598	1.32	0.69	1.05	1.2	1	57.6	5	0.00	1.00	0.1	58		0.768	0.441	2.00		
1002	49	SP	50		4206	4627	1.32	0.69	1.05	1.2	1	57.4	5	0.00	1.00	0.1	57		0.763	0.440	2.00		
1001.5	49.5	SP	50		4235	4656	1.32	0.69	1.05	1.2	1	57.1	5	0.00	1.00	0.1	57		0.758	0.439	2.00		
1001	50	SP	50		4264	4685	1.32	0.68	1.05	1.2	1	56.9	5	0.00	1.00	0.1	57		0.753	0.438	2.00		
1000.5	50.5	SP	50		4293	4714	1.32	0.68	1.05	1.2	1	56.7	5	0.00	1.00	0.1	57		0.748	0.436	2.00		
1000	51	SP	50		4322	4743	1.32	0.68	1.05	1.2	1	56.4	5	0.00	1.00	0.1	56		0.743	0.435	2.00		
999.5	51.5	SP	50		4351	4772	1.32	0.68	1.05	1.2	1	56.2	5	0.00	1.00	0.1	56		0.738	0.434	2.00		
999	52	SP	50		4380	4801	1.32	0.67	1.05	1.2	1	55.9	5	0.00	1.00	0.1	56		0.733	0.432	2.00		
998.5	52.5	SP	50		4409	4830	1.32	0.67	1.05	1.2	1	55.7	5	0.00	1.00	0.1	56		0.728	0.431	2.00		
998	53	SP	50		4438	4859	1.32	0.67	1.05	1.2	1	55.5	5	0.00	1.00	0.1	56		0.723	0.429	2.00		
997.5	53.5	SP	50		4467	4888	1.32	0.66	1.05	1.2	1	55.3	5	0.00	1.00	0.1	55		0.718	0.428	2.00		
997	54	SP	50		4496	4917	1.32	0.66	1.05	1.2	1	55.0	5	0.00	1.00	0.1	55		0.713	0.427	2.00		
996.5	54.5	SP	50		4525	4946	1.32	0.66	1.05	1.2	1	54.8	5	0.00	1.00	0.1	55		0.708	0.425	2.00		
996	55	SP	50		4554	4975	1.32	0.66	1.05	1.2	1	54.6	5	0.00	1.00	0.1	55		0.703	0.424	2.00		
995.5	55.5	SP	50		4583	5004	1.32	0.65	1.05	1.2	1	54.4	5	0.00	1.00	0.1	54		0.699	0.422	2.00		
995	56	SP	50		4612	5033	1.32	0.65	1.05	1.2	1	54.1	5	0.00	1.00	0.1	54		0.694	0.421	2.00		
994.5	56.5	SP	50		4641	5062	1.32	0.65	1.05	1.2	1	53.9	5	0.00	1.00	0.1	54		0.689	0.419	2.00		
994	57	SP	50		4670	5091	1.32	0.65	1.05	1.2	1	53.7	5	0.00	1.00	0.1	54		0.685	0.418	2.00		
993.5	57.5	SP	50		4699	5120	1.32	0.64	1.05	1.2	1	53.5	5	0.00	1.00	0.1	54		0.680	0.416	2.00		
993	58	SP	50		4728	5149	1.32	0.64	1.05	1.2	1	53.3	5	0.00	1.00	0.1	53		0.676	0.415	2.00		
992.5	58.5	SP	50		4757	5178	1.32	0.64	1.05	1.2	1	53.1	5	0.00	1.00	0.1	53		0.672	0.414	2.00		
992	59	SP	50		4786	5207	1.32	0.64	1.05	1.2	1	52.8	5	0.00	1.00	0.1	53		0.668	0.412	2.00		
991.5	59.5	SP	50		4815	5236	1.32	0.63	1.05	1.2	1	52.6	5	0.00	1.00	0.1	53		0.663	0.411	2.00		
991	60	SP	50		4844	5265	1.32	0.63	1.05	1.2	1	52.4	5	0.00	1.00	0.1	52		0.659	0.409	2.00		
990.5	60.5	SP	50		4873	5294	1.32	0.63	1.05	1.2	1	52.2	5	0.00	1.00	0.1	52		0.655	0.408	2.00		
990	61	SP	50		4902	5323	1.32	0.63	1.05	1.2	1	52.0	5	0.00	1.00	0.1	52		0.651	0.407	2.00		
						768																0.000	
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						768																0.000	0.000
																							0.760

SPT Liquefaction Spreadsheet

JOB NAME	Prpoosed Temecula Hospital	Boring	GDI-3		
DATE	8/4/2010	*y*	120	pcf	
BY	CJZ	GW level	22	ft	
CHECKED BY		HHGL	17.9	ft	
DATE		GS Elevation	1049.5		
		LFFE	1057.4		
			Magnitue	a max	
			6.84	0.88	
		MSF	1.27		

Total Settlement 0.06 INCHES

Elevation (MSL)	Depth (feet)	Soil Type	Nfield	Boulanger and Idriss (2006)	σo' (psf) current	σo' (psf) HHGWL	C_E	C_N	C_B	C_S	C_R	$(N_1)_{60}$	Fines Correction			ΔN	$(N_1)_{60}$	CRR	Rd	CSR	FOS	SETTLEMENT (%)	SETTLEMENT (inches)
					psf	psf	energy	stress	5" diam	w/out liner	rod	interim Corr.	%fines	Alpha	Beta			1998 eq. <N=30					
1048.5	1	SM	12		120	1068	1.32	1.75	1.05	1.2	0.75		15	2.50	1.05				1.000	**0.051**	2.00		
1048	1.5	SM	12		180	1128	1.32	1.71	1.05	1.2	0.75		15	2.50	1.05				0.998	**0.072**	2.00		
1047.5	2	SM	12		240	1188	1.32	1.68	1.05	1.2	0.75		15	2.50	1.05				0.997	**0.091**	2.00		
1047	2.5	SM	12		300	1248	1.32	1.64	1.05	1.2	0.75		15	2.50	1.05				0.996	**0.109**	2.00		
1046.5	3	SM	12		360	1308	1.32	1.61	1.05	1.2	0.75		15	2.50	1.05				0.995	**0.124**	2.00		
1046	3.5	SM	12		420	1368	1.32	1.57	1.05	1.2	0.75		15	2.50	1.05				0.994	**0.139**	2.00		
1045.5	4	SM	12		480	1428	1.32	1.54	1.05	1.2	0.75		15	2.50	1.05				0.993	**0.151**	2.00		
1045	4.5	SM	12		540	1488	1.32	1.51	1.05	1.2	0.75		15	2.50	1.05				0.991	**0.163**	2.00		
1044.5	5	SM	15		600	1548	1.32	1.48	1.05	1.2	0.75		15	2.50	1.05				0.990	**0.174**	2.00		
1044	5.5	SM	15		660	1608	1.32	1.46	1.05	1.2	0.75		15	2.50	1.05				0.989	**0.184**	2.00		
1043.5	6	SM	15		720	1668	1.32	1.43	1.05	1.2	0.75		15	2.50	1.05				0.988	**0.194**	2.00		
1043	6.5	SM	15		780	1728	1.32	1.40	1.05	1.2	0.75		15	2.50	1.05				0.987	**0.202**	2.00		
1042.5	7	SM	15		840	1788	1.32	1.38	1.05	1.2	0.75		15	2.50	1.05				0.986	**0.210**	2.00		
1042	7.5	SM	18		900	1848	1.32	1.35	1.05	1.2	0.75		15	2.50	1.05				0.985	**0.218**	2.00		
1041.5	8	SM	18		960	1908	1.32	1.33	1.05	1.2	0.75		15	2.50	1.05				0.983	**0.225**	2.00		
1041	8.5	SM	18		1020	1968	1.32	1.31	1.05	1.2	0.75		15	2.50	1.05				0.982	**0.231**	2.00		
1040.5	9	SM	18		1080	2028	1.32	1.29	1.05	1.2	0.75		15	2.50	1.05				0.981	**0.237**	2.00		
1040	9.5	SM	25		1140	2088	1.32	1.27	1.05	1.2	0.75		15	2.50	1.05				0.980	**0.243**	2.00		
1039.5	10	SM	25		1200	2148	1.32	1.24	1.05	1.2	0.75		15	2.50	1.05				0.979	**0.248**	2.00		
1039	10.5	SM	25		1260	2208	1.32	1.23	1.05	1.2	0.75		15	2.50	1.05				0.978	**0.253**	2.00		
1038.5	11	SM	25		1320	2268	1.32	1.21	1.05	1.2	0.75		15	2.50	1.05				0.977	**0.258**	2.00		
1038	11.5	SM	25		1380	2328	1.32	1.19	1.05	1.2	0.75		15	2.50	1.05				0.976	**0.263**	2.00		
1037.5	12	SM	25		1440	2388	1.32	1.17	1.05	1.2	0.75		15	2.50	1.05				0.975	**0.267**	2.00		
1037	12.5	SM	25		1500	2448	1.32	1.15	1.05	1.2	0.75		15	2.50	1.05				0.974	**0.271**	2.00		
1036.5	13	SM	25		1560	2508	1.32	1.14	1.05	1.2	0.85		15	2.50	1.05				0.973	**0.275**	2.00		
1036	13.5	SM	25		1620	2568	1.32	1.12	1.05	1.2	0.85		15	2.50	1.05				0.972	**0.278**	2.00		
1035.5	14	SM	25		1680	2628	1.32	1.10	1.05	1.2	0.85		15	2.50	1.05				0.971	**0.282**	2.00		
1035	14.5	SM	25		1740	2688	1.32	1.09	1.05	1.2	0.85		15	2.50	1.05				0.970	**0.285**	2.00		
1034.5	15	SM	25		1800	2748	1.32	1.07	1.05	1.2	0.85		15	2.50	1.05				0.969	**0.288**	2.00		
1034	15.5	SM	25		1860	2808	1.32	1.06	1.05	1.2	0.85		15	2.50	1.05				0.967	**0.291**	2.00		
1033.5	16	SM	25		1920	2868	1.32	1.04	1.05	1.2	0.85		15	2.50	1.05				0.966	**0.294**	2.00		
1033	16.5	SM	25		1980	2928	1.32	1.03	1.05	1.2	0.85		15	2.50	1.05				0.965	**0.296**	2.00		
1032.5	17	SM	25		2040	2988	1.32	1.02	1.05	1.2	0.85		15	2.50	1.05				0.964	**0.299**	2.00		
1032	17.5	SM	25		2100	3048	1.32	1.00	1.05	1.2	0.85		15	2.50	1.05				0.963	**0.301**	2.00		
1031.5	18	SM	25		2160	3102	1.32	0.99	1.05	1.2	0.85	35.0	15	2.50	1.05	4.2	**39**		0.962	**0.304**	2.00		
1031	18.5	SM	25		2220	3131	1.32	0.98	1.05	1.2	0.85	34.6	15	2.50	1.05	4.2	**39**		0.961	**0.309**	2.00		
1030.5	19	SM	25		2280	3160	1.32	0.97	1.05	1.2	0.85	34.1	15	2.50	1.05	4.1	**38**		0.959	**0.314**	2.00		
1030	19.5	ML	6	YES	2340	3189	1.32	0.95	1.05	1.2	0.85	8.1	35	5.00	1.20	6.6	**15**	0.157	0.958	**0.319**	0.62	0.020	0.000
1029.5	20	ML	6	YES	2400	3218	1.32	0.94	1.05	1.2	0.95	8.9	35	5.00	1.20	6.8	**16**	0.167	0.957	**0.324**	0.65	0.018	0.000
1029	20.5	ML	6	YES	2460	3247	1.32	0.93	1.05	1.2	0.95	8.8	35	5.00	1.20	6.8	**16**	0.166	0.956	**0.329**	0.64	0.018	0.000
1028.5	21	ML	6	YES	2520	3276	1.32	0.92	1.05	1.2	0.95	8.7	35	5.00	1.20	6.7	**15**	0.165	0.954	**0.333**	0.63	0.018	0.000
1028	21.5	ML	6	YES	2580	3305	1.32	0.91	1.05	1.2	0.95	8.6	35	5.00	1.20	6.7	**15**	0.164	0.953	**0.338**	0.61	0.018	0.000
1027.5	22	ML	6	YES	2640	3334	1.32	0.90	1.05	1.2	0.95	8.5	35	5.00	1.20	6.7	**15**	0.162	0.951	**0.342**	0.60	0.018	0.000
1027	22.5	ML	6	YES	2669	3363	1.32	0.89	1.05	1.2	0.95	8.5	35	5.00	1.20	6.7	**15**	0.162	0.950	**0.346**	0.59	0.018	0.000
1026.5	23	ML	6	YES	2698	3392	1.32	0.89	1.05	1.2	0.95	8.4	35	5.00	1.20	6.7	**15**	0.161	0.948	**0.350**	0.58	0.018	0.000
1026	23.5	ML	6	YES	2727	3421	1.32	0.88	1.05	1.2	0.95	8.4	35	5.00	1.20	6.7	**15**	0.161	0.947	**0.354**	0.57	0.018	0.000
1025.5	24	ML	6	YES	2756	3450	1.32	0.88	1.05	1.2	0.95	8.3	35	5.00	1.20	6.7	**15**	0.160	0.945	**0.358**	0.57	0.018	0.000
1025	24.5	SM	17		2785	3479	1.32	0.87	1.05	1.2	0.95	23.5	18	3.23	1.07	4.8	**28**	0.380	0.944	**0.362**	1.33	0.000	0.002
1024.5	25	SM	17		2814	3508	1.32	0.87	1.05	1.2	0.95	23.4	18	3.23	1.07	4.8	**28**	0.375	0.942	**0.366**	1.30	0.000	0.002
1024	25.5	SM	17		2843	3537	1.32	0.86	1.05	1.2	0.95	23.2	18	3.23	1.07	4.8	**28**	0.370	0.940	**0.369**	1.27	0.000	0.002
1023.5	26	SM	17		2872	3566	1.32	0.86	1.05	1.2	0.95	23.1	18	3.23	1.07	4.8	**28**	0.365	0.938	**0.373**	1.24	0.001	0.005
1023	26.5	SM	17		2901	3595	1.32	0.86	1.05	1.2	0.95	23.0	18	3.23	1.07	4.8	**28**	0.361	0.936	**0.376**	1.21	0.001	0.005
1022.5	27	SM	17		2930	3624	1.32	0.85	1.05	1.2	0.95	22.9	18	3.23	1.07	4.8	**28**	0.357	0.934	**0.379**	1.19	0.001	0.005
1022	27.5	SM	17		2959	3653	1.32	0.85	1.05	1.2	0.95	22.7	18	3.23	1.07	4.7	**27**	0.353	0.932	**0.382**	1.17	0.001	0.005
1021.5	28	SM	17		2988	3682	1.32	0.84	1.05	1.2	0.95	22.6	18	3.23	1.07	4.7	**27**	0.349	0.930	**0.385**	1.15	0.001	0.005
1021	28.5	SM	17		3017	3711	1.32	0.84	1.05	1.2	0.95	22.5	18	3.23	1.07	4.7	**27**	0.345	0.928	**0.388**	1.12	0.001	0.005
1020.5	29	SM	17		3046	3740	1.32	0.83	1.05	1.2	0.95	22.4	18	3.23	1.07	4.7	**27**	0.341	0.925	**0.391**	1.10	0.002	0.010
1020	29.5	SM	17		3075	3769	1.32	0.83	1.05	1.2	0.95	22.3	18	3.23	1.07	4.7	**27**	0.338	0.923	**0.394**	1.09	0.002	0.010

1019.5	30	SM	23		3104	3798	1.32	0.82	1.05	1.2	0.95	30.0	24	4.13	1.10	7.3	37	0.921	**0.396**	2.00	
1019	30.5	SP	23		3133	3827	1.32	0.82	1.05	1.2	0.95	29.8	24	4.13	1.10	7.3	37	0.918	**0.399**	2.00	
1018.5	31	SP	23		3162	3856	1.32	0.82	1.05	1.2	0.95	29.7	24	4.13	1.10	7.2	37	0.915	**0.401**	2.00	
1018	31.5	SP	23		3191	3885	1.32	0.81	1.05	1.2	0.95	29.5	24	4.13	1.10	7.2	37	0.913	**0.403**	2.00	
1017.5	32	SP	23		3220	3914	1.32	0.81	1.05	1.2	0.95	29.4	25	4.25	1.11	7.5	37	0.910	**0.405**	2.00	
1017	32.5	SP	23		3249	3943	1.32	0.80	1.05	1.2	0.95	29.2	24	4.13	1.10	7.2	36	0.907	**0.407**	2.00	
1016.5	33	SP	35		3278	3972	1.32	0.80	1.05	1.2	1	46.6	18	3.23	1.07	6.3	53	0.904	**0.409**	2.00	
1016	33.5	SP	35		3307	4001	1.32	0.80	1.05	1.2	1	46.4	18	3.23	1.07	6.3	53	0.901	**0.411**	2.00	
1015.5	34	SP	35		3336	4030	1.32	0.79	1.05	1.2	1	46.1	18	3.23	1.07	6.3	52	0.897	**0.413**	2.00	
1015	34.5	SP	35		3365	4059	1.32	0.79	1.05	1.2	1	45.9	18	3.23	1.07	6.3	52	0.894	**0.414**	2.00	
1014.5	35	SP	35		3394	4088	1.32	0.78	1.05	1.2	1	45.7	18	3.23	1.07	6.3	52	0.891	**0.415**	2.00	
1014	35.5	SP	35		3423	4117	1.32	0.78	1.05	1.2	1	45.5	18	3.23	1.07	6.3	52	0.887	**0.417**	2.00	
1013.5	36	SP	35		3452	4146	1.32	0.78	1.05	1.2	1	45.2	18	3.23	1.07	6.2	51	0.883	**0.418**	2.00	
1013	36.5	SP	35		3481	4175	1.32	0.77	1.05	1.2	1	45.0	18	3.23	1.07	6.2	51	0.880	**0.419**	2.00	
1012.5	37	SP	35		3510	4204	1.32	0.77	1.05	1.2	1	44.8	18	3.23	1.07	6.2	51	0.876	**0.420**	2.00	
1012	37.5	SP	39		3539	4233	1.32	0.77	1.05	1.2	1	49.7	18	3.23	1.07	6.5	56	0.872	**0.421**	2.00	
1011.5	38	SP	39		3568	4262	1.32	0.76	1.05	1.2	1	49.4	18	3.23	1.07	6.5	56	0.868	**0.422**	2.00	
1011	38.5	SP	39		3597	4291	1.32	0.76	1.05	1.2	1	49.2	18	3.23	1.07	6.5	56	0.864	**0.422**	2.00	
1010.5	39	SP	34		3626	4320	1.32	0.76	1.05	1.2	1	42.7	18	3.23	1.07	6.1	49	0.860	**0.423**	2.00	
1010	39.5	SP	34		3655	4349	1.32	0.75	1.05	1.2	1	42.5	18	3.23	1.07	6.1	49	0.855	**0.423**	2.00	
1009.5	40	SP	34		3684	4378	1.32	0.75	1.05	1.2	1	42.3	18	3.23	1.07	6.0	48	0.851	**0.424**	2.00	
1009	40.5	SP	34		3713	4407	1.32	0.74	1.05	1.2	1	42.1	18	3.23	1.07	6.0	48	0.847	**0.424**	2.00	
1008.5	41	SP	34		3742	4436	1.32	0.74	1.05	1.2	1	41.9	18	3.23	1.07	6.0	48	0.842	**0.424**	2.00	
1008	41.5	SP	34		3771	4465	1.32	0.74	1.05	1.2	1	41.7	18	3.23	1.07	6.0	48	0.837	**0.424**	2.00	
1007.5	42	SP	34		3800	4494	1.32	0.73	1.05	1.2	1	41.5	18	3.23	1.07	6.0	48	0.833	**0.424**	2.00	
1007	42.5	SP	34		3829	4523	1.32	0.73	1.05	1.2	1	41.3	18	3.23	1.07	6.0	47	0.828	**0.424**	2.00	
1006.5	43	SP	34		3858	4552	1.32	0.73	1.05	1.2	1	41.2	18	3.23	1.07	6.0	47	0.823	**0.424**	2.00	
1006	43.5	SP	34		3887	4581	1.32	0.72	1.05	1.2	1	41.0	18	3.23	1.07	6.0	47	0.818	**0.423**	2.00	
1005.5	44	SP	34		3916	4610	1.32	0.72	1.05	1.2	1	40.8	18	3.23	1.07	5.9	47	0.814	**0.423**	2.00	
1005	44.5	SP	34		3945	4639	1.32	0.72	1.05	1.2	1	40.6	18	3.23	1.07	5.9	47	0.809	**0.423**	2.00	
1004.5	45	SP	34		3974	4668	1.32	0.71	1.05	1.2	1	40.4	22	3.93	1.09	7.7	48	0.804	**0.422**	2.00	
1004	45.5	SP	26		4003	4697	1.32	0.71	1.05	1.2	1	30.8	22	3.93	1.09	6.8	38	0.799	**0.422**	2.00	
1003.5	46	SP	26		4032	4726	1.32	0.71	1.05	1.2	1	30.6	22	3.93	1.09	6.8	37	0.794	**0.421**	2.00	
1003	46.5	SP	26		4061	4755	1.32	0.71	1.05	1.2	1	30.5	22	3.93	1.09	6.8	37	0.788	**0.420**	2.00	
1002.5	47	SP	26		4090	4784	1.32	0.70	1.05	1.2	1	30.4	22	3.93	1.09	6.8	37	0.783	**0.419**	2.00	
1002	47.5	SP	26		4119	4813	1.32	0.70	1.05	1.2	1	30.2	22	3.93	1.09	6.7	37	0.778	**0.419**	2.00	
1001.5	48	SP	26		4148	4842	1.32	0.70	1.05	1.2	1	30.1	22	3.93	1.09	6.7	37	0.773	**0.418**	2.00	
1001	48.5	SP	26		4177	4871	1.32	0.69	1.05	1.2	1	30.0	22	3.93	1.09	6.7	37	0.768	**0.417**	2.00	
1000.5	49	SP	26		4206	4900	1.32	0.69	1.05	1.2	1	29.8	22	3.93	1.09	6.7	37	0.763	**0.416**	2.00	
1000	49.5	SP	26		4235	4929	1.32	0.69	1.05	1.2	1	29.7	22	3.93	1.09	6.7	36	0.758	**0.415**	2.00	
999.5	50	SP	26		4264	4958	1.32	0.68	1.05	1.2	1	29.6	22	3.93	1.09	6.7	36	0.753	**0.414**	2.00	
999	50.5	SP	50		4293	4987	1.32	0.68	1.05	1.2	1	56.7	5	0.00	1.00	0.1	57	0.748	**0.413**	2.00	
998.5	51	SP	50		4322	5016	1.32	0.68	1.05	1.2	1	56.4	5	0.00	1.00	0.1	56	0.743	**0.411**	2.00	
998	51.5	SP	50		4351	5045	1.32	0.68	1.05	1.2	1	56.2	5	0.00	1.00	0.1	56	0.738	**0.410**	2.00	
997.5	52	SP	50		4380	5074	1.32	0.67	1.05	1.2	1	55.9	5	0.00	1.00	0.1	56	0.733	**0.409**	2.00	
997	52.5	SP	50		4409	5103	1.32	0.67	1.05	1.2	1	55.7	5	0.00	1.00	0.1	56	0.728	**0.408**	2.00	
996.5	53	SP	50		4438	5132	1.32	0.67	1.05	1.2	1	55.5	5	0.00	1.00	0.1	56	0.723	**0.407**	2.00	
996	53.5	SP	50		4467	5161	1.32	0.66	1.05	1.2	1	55.3	5	0.00	1.00	0.1	55	0.718	**0.405**	2.00	
995.5	54	SP	50		4496	5190	1.32	0.66	1.05	1.2	1	55.0	5	0.00	1.00	0.1	55	0.713	**0.404**	2.00	
995	54.5	SP	**50**		4525	5219	1.32	0.66	1.05	1.2	1	54.8	5	0.00	1.00	0.1	55	0.708	**0.403**	2.00	
994.5	55	SP	**50**		4554	5248	1.32	0.66	1.05	1.2	1	54.6	5	0.00	1.00	0.1	55	0.703	**0.402**	2.00	
994	55.5	SP	**50**		4583	5277	1.32	0.65	1.05	1.2	1	54.4	5	0.00	1.00	0.1	54	0.699	**0.400**	2.00	
993.5	56	SP	**50**		4612	5306	1.32	0.65	1.05	1.2	1	54.1	5	0.00	1.00	0.1	54	0.694	**0.399**	2.00	
993	56.5	SP	**50**		4641	5335	1.32	0.65	1.05	1.2	1	53.9	5	0.00	1.00	0.1	54	0.689	**0.398**	2.00	
992.5	57	SP	**50**		4670	5364	1.32	0.65	1.05	1.2	1	53.7	5	0.00	1.00	0.1	54	0.685	**0.397**	2.00	
992	57.5	SP	**50**		4699	5393	1.32	0.64	1.05	1.2	1	53.5	5	0.00	1.00	0.1	54	0.680	**0.395**	2.00	
991.5	58	SP	**50**		4728	5422	1.32	0.64	1.05	1.2	1	53.3	5	0.00	1.00	0.1	53	0.676	**0.394**	2.00	
991	58.5	SP	**50**		4757	5451	1.32	0.64	1.05	1.2	1	53.1	5	0.00	1.00	0.1	53	0.672	**0.393**	2.00	
990.5	59	SP	50		4786	5480	1.32	0.64	1.05	1.2	1	52.8	5	0.00	1.00	0.1	53	0.668	**0.392**	2.00	
990	59.5	SP	50		4815	5509	1.32	0.63	1.05	1.2	1	52.6	5	0.00	1.00	0.1	53	0.663	**0.390**	2.00	
989.5	60	SP	50		4844	5538	1.32	0.63	1.05	1.2	1	52.4	5	0.00	1.00	0.1	52	0.659	**0.389**	2.00	
989	60.5	SP	50		4873	5567	1.32	0.63	1.05	1.2	1	52.2	5	0.00	1.00	0.1	52	0.655	**0.388**	2.00	
988.5	61	SP	50		4902	5596	1.32	0.63	1.05	1.2	1	52.0	5	0.00	1.00	0.1	52	0.651	**0.387**	2.00	
988	61.5	SP	50		4931	5625	1.32	0.62	1.05	1.2	1	51.8	5	0.00	1.00	0.1	52	0.647	**0.386**	2.00	
987.5	62	SP	50		4960	5654	1.32	0.62	1.05	1.2	1	51.6	5	0.00	1.00	0.1	52	0.644	**0.384**	2.00	
987	62.5	SP	50		4989	5683	1.32	0.62	1.05	1.2	1	51.4	5	0.00	1.00	0.1	51	0.640	**0.383**	2.00	
986.5	63	SP	50		5018	5712	1.32	0.62	1.05	1.2	1	51.2	5	0.00	1.00	0.1	51	0.636	**0.382**	2.00	
986	63.5	SP	50		5047	5741	1.32	0.61	1.05	1.2	1	51.0	5	0.00	1.00	0.1	51	0.632	**0.381**	2.00	
985.5	64	SP	50		5076	5770	1.32	0.61	1.05	1.2	1	50.8	5	0.00	1.00	0.1	51	0.629	**0.380**	2.00	
985	64.5	SP	50		5105	5799	1.32	0.61	1.05	1.2	1	50.6	5	0.00	1.00	0.1	51	0.625	**0.379**	2.00	
984.5	65	SP	50		5134	5828	1.32	0.61	1.05	1.2	1	50.5	5	0.00	1.00	0.1	51	0.622	**0.378**	2.00	
984	65.5	SP	50		5163	5857	1.32	0.60	1.05	1.2	1	50.3	5	0.00	1.00	0.1	50	0.619	**0.377**	2.00	
983.5	66	SP	50		5192	5886	1.32	0.60	1.05	1.2	1	50.1	5	0.00	1.00	0.1	50	0.616	**0.376**	2.00	
983	66.5	SP	50		5221	5915	1.32	0.60	1.05	1.2	1	49.9	5	0.00	1.00	0.1	50	0.612	**0.375**	2.00	
982.5	67	SP	50		5250	5944	1.32	0.60	1.05	1.2	1	49.7	5	0.00	1.00	0.1	50	0.609	**0.374**	2.00	
982	67.5	SP	50		5279	5973	1.32	0.60	1.05	1.2	1	49.5	5	0.00	1.00	0.1	50	0.606	**0.373**	2.00	
981.5	68	SP	50		5308	6002	1.32	0.59	1.05	1.2	1	49.3	5	0.00	1.00	0.1	49	0.603	**0.372**	2.00	
981	68.5	SP	50		5337	6031	1.32	0.59	1.05	1.2	1	49.2	5	0.00	1.00	0.1	49	0.600	**0.371**	2.00	
980.5	69	SP	50		5366	6060	1.32	0.59	1.05	1.2	1	49.0	5	0.00	1.00	0.1	49	0.597	**0.371**	2.00	
980	69.5	SP	50		5395	6089	1.32	0.59	1.05	1.2	1	48.8	5	0.00	1.00	0.1	49	0.595	**0.370**	2.00	
979.5	70	SP	50		5424	6118	1.32	0.58	1.05	1.2	1	48.6	5	0.00	1.00	0.1	49	0.592	**0.369**	2.00	
																					0.060

1018.5	30	ML	10	YES	3166	3980	1.32	0.82	1.05	1.2	0.95	12.9	35	5.00	1.20	7.6	20	0.221	0.921	0.378	0.74	0.014	0.000
1018	30.5	SP	30		3195	4009	1.32	0.81	1.05	1.2	0.95	38.5	5	0.00	1.00	0.0	39		0.918	0.381	2.00		
1017.5	31	SP	30		3224	4038	1.32	0.81	1.05	1.2	0.95	38.3	5	0.00	1.00	0.0	38		0.915	0.383	2.00		
1017	31.5	SP	30		3253	4067	1.32	0.80	1.05	1.2	0.95	38.1	5	0.00	1.00	0.0	38		0.913	0.385	2.00		
1016.5	32	SP	30		3282	4096	1.32	0.80	1.05	1.2	0.95	37.9	5	0.00	1.00	0.0	38		0.910	0.387	2.00		
1016	32.5	SP	30		3311	4125	1.32	0.80	1.05	1.2	0.95	37.7	5	0.00	1.00	0.0	38		0.907	0.389	2.00		
1015.5	33	SP	41		3340	4154	1.32	0.79	1.05	1.2	1	54.0	5	0.00	1.00	0.1	54		0.904	0.391	2.00		
1015	33.5	SP	41		3369	4183	1.32	0.79	1.05	1.2	1	53.7	5	0.00	1.00	0.1	54		0.901	0.393	2.00		
1014.5	34	SP	41		3398	4212	1.32	0.78	1.05	1.2	1	53.5	5	0.00	1.00	0.1	54		0.897	0.395	2.00		
1014	34.5	SP	41		3427	4241	1.32	0.78	1.05	1.2	1	53.2	5	0.00	1.00	0.1	53		0.894	0.396	2.00		
1013.5	35	SP	41		3456	4270	1.32	0.78	1.05	1.2	1	52.9	5	0.00	1.00	0.1	53		0.891	0.398	2.00		
1013	35.5	SP	27		3485	4299	1.32	0.77	1.05	1.2	1	34.7	5	0.00	1.00	0.0	35		0.887	0.399	2.00		
1012.5	36	SP	27		3514	4328	1.32	0.77	1.05	1.2	1	34.5	5	0.00	1.00	0.0	35		0.883	0.400	2.00		
1012	36.5	SP	27		3543	4357	1.32	0.77	1.05	1.2	1	34.4	5	0.00	1.00	0.0	34		0.880	0.402	2.00		
1011.5	37	SP	27		3572	4386	1.32	0.76	1.05	1.2	1	34.2	5	0.00	1.00	0.0	34		0.876	0.403	2.00		
1011	37.5	SP	27		3601	4415	1.32	0.76	1.05	1.2	1	34.0	5	0.00	1.00	0.0	34		0.872	0.404	2.00		
1010.5	38	SP	32		3630	4444	1.32	0.75	1.05	1.2	1	40.2	5	0.00	1.00	0.1	40		0.868	0.404	2.00		
1010	38.5	SP	32		3659	4473	1.32	0.75	1.05	1.2	1	40.0	5	0.00	1.00	0.1	40		0.864	0.405	2.00		
1009.5	39	SP	32		3688	4502	1.32	0.75	1.05	1.2	1	39.8	5	0.00	1.00	0.0	40		0.860	0.406	2.00		
1009	39.5	SP	32		3717	4531	1.32	0.74	1.05	1.2	1	39.6	5	0.00	1.00	0.0	40		0.855	0.406	2.00		
1008.5	40	SP	32		3746	4560	1.32	0.74	1.05	1.2	1	39.4	5	0.00	1.00	0.0	39		0.851	0.407	2.00		
1008	40.5	SP	28		3775	4589	1.32	0.74	1.05	1.2	1	34.3	5	0.00	1.00	0.0	34		0.847	0.407	2.00		
1007.5	41	SP	28		3804	4618	1.32	0.73	1.05	1.2	1	34.2	5	0.00	1.00	0.0	34		0.842	0.407	2.00		
1007	41.5	SP	28		3833	4647	1.32	0.73	1.05	1.2	1	34.0	5	0.00	1.00	0.0	34		0.837	0.408	2.00		
1006.5	42	SP	28		3862	4676	1.32	0.73	1.05	1.2	1	33.9	5	0.00	1.00	0.0	34		0.833	0.408	2.00		
1006	42.5	SP	28		3891	4705	1.32	0.72	1.05	1.2	1	33.7	5	0.00	1.00	0.0	34		0.828	0.408	2.00		
1005.5	43	SP	28		3920	4734	1.32	0.72	1.05	1.2	1	33.6	5	0.00	1.00	0.0	34		0.823	0.407	2.00		
1005	43.5	ML	20		3949	4763	1.32	0.72	1.05	1.2	1	23.9	35	5.00	1.20	9.8	34		0.818	0.407	2.00		
1004.5	44	ML	20		3978	4792	1.32	0.71	1.05	1.2	1	23.8	35	5.00	1.20	9.8	34		0.814	0.407	2.00		
1004	44.5	ML	50		4007	4821	1.32	0.71	1.05	1.2	1	59.1	35	5.00	1.20	16.8	76		0.809	0.407	2.00		
1003.5	45	SP	50		4036	4850	1.32	0.71	1.05	1.2	1	58.9	5	0.00	1.00	0.1	59		0.804	0.406	2.00		
1003	45.5	SP	50		4065	4879	1.32	0.70	1.05	1.2	1	58.6	5	0.00	1.00	0.1	59		0.799	0.406	2.00		
1002.5	46	SP	50		4094	4908	1.32	0.70	1.05	1.2	1	58.4	5	0.00	1.00	0.1	58		0.794	0.405	2.00		
1002	46.5	SP	50		4123	4937	1.32	0.70	1.05	1.2	1	58.1	5	0.00	1.00	0.1	58		0.788	0.405	2.00		
1001.5	47	SP	50		4152	4966	1.32	0.70	1.05	1.2	1	57.9	5	0.00	1.00	0.1	58		0.783	0.404	2.00		
1001	47.5	SP	50		4181	4995	1.32	0.69	1.05	1.2	1	57.6	5	0.00	1.00	0.1	58		0.778	0.403	2.00		
1000.5	48	SP	50		4210	5024	1.32	0.69	1.05	1.2	1	57.4	5	0.00	1.00	0.1	57		0.773	0.402	2.00		
1000	48.5	SP	50		4239	5053	1.32	0.69	1.05	1.2	1	57.1	5	0.00	1.00	0.1	57		0.768	0.402	2.00		
999.5	49	SP	50		4268	5082	1.32	0.68	1.05	1.2	1	56.9	5	0.00	1.00	0.1	57		0.763	0.401	2.00		
999	49.5	SP	50		4297	5111	1.32	0.68	1.05	1.2	1	56.6	5	0.00	1.00	0.1	57		0.758	0.400	2.00		
998.5	50	SP	50		4326	5140	1.32	0.68	1.05	1.2	1	56.4	5	0.00	1.00	0.1	56		0.753	0.399	2.00		
998	50.5	SP	50		4355	5169	1.32	0.68	1.05	1.2	1	56.2	5	0.00	1.00	0.1	56		0.748	0.398	2.00		
997.5	51	SP	50		4384	5198	1.32	0.67	1.05	1.2	1	55.9	5	0.00	1.00	0.1	56		0.743	0.397	2.00		
997	51.5	SP	50		4413	5227	1.32	0.67	1.05	1.2	1	55.7	5	0.00	1.00	0.1	56		0.738	0.396	2.00		
996.5	52	SP	50		4442	5256	1.32	0.67	1.05	1.2	1	55.5	5	0.00	1.00	0.1	56		0.733	0.395	2.00		
996	52.5	SP	50		4471	5285	1.32	0.66	1.05	1.2	1	55.2	5	0.00	1.00	0.1	55		0.728	0.394	2.00		
995.5	53	SP	50		4500	5314	1.32	0.66	1.05	1.2	1	55.0	5	0.00	1.00	0.1	55		0.723	0.393	2.00		
995	53.5	SP	50		4529	5343	1.32	0.66	1.05	1.2	1	54.8	5	0.00	1.00	0.1	55		0.718	0.392	2.00		
994.5	54	SP	50		4558	5372	1.32	0.66	1.05	1.2	1	54.5	5	0.00	1.00	0.1	55		0.713	0.390	2.00		
994	54.5	SP	50		4587	5401	1.32	0.65	1.05	1.2	1	54.3	5	0.00	1.00	0.1	54		0.708	0.389	2.00		
993.5	55	SP	50		4616	5430	1.32	0.65	1.05	1.2	1	54.1	5	0.00	1.00	0.1	54		0.703	0.388	2.00		
993	55.5	SP	50		4645	5459	1.32	0.65	1.05	1.2	1	53.9	5	0.00	1.00	0.1	54		0.699	0.387	2.00		
992.5	56	SP	50		4674	5488	1.32	0.65	1.05	1.2	1	53.7	5	0.00	1.00	0.1	54		0.694	0.386	2.00		
992	56.5	SP	50		4703	5517	1.32	0.64	1.05	1.2	1	53.5	5	0.00	1.00	0.1	54		0.689	0.385	2.00		
991.5	57	SP	50		4732	5546	1.32	0.64	1.05	1.2	1	53.2	5	0.00	1.00	0.1	53		0.685	0.384	2.00		
991	57.5	SP	50		4761	5575	1.32	0.64	1.05	1.2	1	53.0	5	0.00	1.00	0.1	53		0.680	0.382	2.00		
990.5	58	SP	50		4790	5604	1.32	0.64	1.05	1.2	1	52.8	35	5.00	1.20	15.6	68		0.676	0.381	2.00		
990	58.5	SP	50		4819	5633	1.32	0.63	1.05	1.2	1	52.6	35	5.00	1.20	15.5	68		0.672	0.380	2.00		
989.5	59	SP	50		4848	5662	1.32	0.63	1.05	1.2	1	52.4	5	0.00	1.00	0.1	52		0.668	0.379	2.00		
989	59.5	SP	50		4877	5691	1.32	0.63	1.05	1.2	1	52.2	5	0.00	1.00	0.1	52		0.663	0.378	2.00		
988.5	60	SP	50		4906	5720	1.32	0.63	1.05	1.2	1	52.0	5	0.00	1.00	0.1	52		0.659	0.377	2.00		
988	60.5	SP	50		4935	5749	1.32	0.62	1.05	1.2	1	51.8	5	0.00	1.00	0.1	52		0.655	0.376	2.00		
987.5	61	SP	50		4964	5778	1.32	0.62	1.05	1.2	1	51.6	5	0.00	1.00	0.1	52		0.651	0.375	2.00		
987	61.5	SP	50		4993	5807	1.32	0.62	1.05	1.2	1	51.4	5	0.00	1.00	0.1	51		0.647	0.374	2.00		
986.5	62	SP	50		5022	5836	1.32	0.62	1.05	1.2	1	51.2	5	0.00	1.00	0.1	51		0.644	0.372	2.00		
986	62.5	SP	50		5051	5865	1.32	0.61	1.05	1.2	1	51.0	5	0.00	1.00	0.1	51		0.640	0.371	2.00		
985.5	63	SP	50		5080	5894	1.32	0.61	1.05	1.2	1	50.8	5	0.00	1.00	0.1	51		0.636	0.370	2.00		
985	63.5	SP	50		5109	5923	1.32	0.61	1.05	1.2	1	50.6	5	0.00	1.00	0.1	51		0.632	0.369	2.00		
984.5	64	SP	50		5138	5952	1.32	0.61	1.05	1.2	1	50.4	5	0.00	1.00	0.1	50		0.629	0.368	2.00		
984	64.5	SP	50		5167	5981	1.32	0.60	1.05	1.2	1	50.2	5	0.00	1.00	0.1	50		0.625	0.368	2.00		
983.5	65	SP	50		5196	6010	1.32	0.60	1.05	1.2	1	50.0	5	0.00	1.00	0.1	50		0.622	0.367	2.00		
983	65.5	SP	50		5225	6039	1.32	0.60	1.05	1.2	1	49.9	5	0.00	1.00	0.1	50		0.619	0.366	2.00		
982.5	66	SP	50		5254	6068	1.32	0.60	1.05	1.2	1	49.7	5	0.00	1.00	0.1	50		0.616	0.365	2.00		
982	66.5	SP	50		5283	6097	1.32	0.60	1.05	1.2	1	49.5	5	0.00	1.00	0.1	50		0.612	0.364	2.00		
981.5	67	SP	50		5312	6126	1.32	0.59	1.05	1.2	1	49.3	5	0.00	1.00	0.1	49		0.609	0.363	2.00		
981	67.5	SP	50		5341	6155	1.32	0.59	1.05	1.2	1	49.1	5	0.00	1.00	0.1	49		0.606	0.362	2.00		
980.5	68	SP	50		5370	6184	1.32	0.59	1.05	1.2	1	48.9	5	0.00	1.00	0.1	49		0.603	0.361	2.00		
980	68.5	SP	50		5399	6213	1.32	0.59	1.05	1.2	1	48.8	5	0.00	1.00	0.1	49		0.600	0.361	2.00		
979.5	69	SP	50		5428	6242	1.32	0.58	1.05	1.2	1	48.6	5	0.00	1.00	0.1	49		0.597	0.360	2.00		
979	69.5	SP	50		5457	6271	1.32	0.58	1.05	1.2	1	48.4	5	0.00	1.00	0.1	48		0.595	0.359	2.00		
978.5	70	SP	50		5486	6300	1.32	0.58	1.05	1.2	1	48.2	5	0.00	1.00	0.1	48		0.592	0.358	2.00		
																							0.048

SPT Liquefaction Spreadsheet

JOB NAME	Prpoosed Temecula Hospital	Boring	GDI-4		
DATE	8/4/2010	*y*	120	pcf	
BY	CJZ	GW level	23	ft	
CHECKED BY		HHGL	18.9	ft	
DATE		GS Elevation	1048.5		
		LFFE	1057.4		

Magnitue	a max
6.84	0.88

MSF 1.27

Total Settlement 0.05 INCHES

Elevation (MSL)	Depth (feet)	Soil Type	Nfield	Boulanger and Idriss (2006)	σo' (psf) current	σo' (psf) HHGWL	C_E	C_N	C_B	C_S	C_R	$(N_1)_{60}$	Fines Correction			ΔN	$(N_1)_{60}$	CRR 1998 eq.	Rd	CSR	FOS	SETTLEMENT (%)	SETTLEMENT (inches)
					psf	psf	energy	stress	5" diam	w/out liner	rod	interim Corr.	%fines	Alpha	Beta			<N=30					
1047.5	1	SP-SM	13		120	1188	1.32	1.75	1.05	1.2	0.75		10	0.87	1.02				1.000	**0.046**	2.00		
1047	1.5	SP-SM	13		180	1248	1.32	1.71	1.05	1.2	0.75		10	0.87	1.02				0.998	**0.065**	2.00		
1046.5	2	SP-SM	13		240	1308	1.32	1.68	1.05	1.2	0.75		10	0.87	1.02				0.997	**0.083**	2.00		
1046	2.5	SP-SM	13		300	1368	1.32	1.64	1.05	1.2	0.75		10	0.87	1.02				0.996	**0.099**	2.00		
1045.5	3	SP-SM	13		360	1428	1.32	1.61	1.05	1.2	0.75		10	0.87	1.02				0.995	**0.114**	2.00		
1045	3.5	SP-SM	13		420	1488	1.32	1.57	1.05	1.2	0.75		10	0.87	1.02				0.994	**0.127**	2.00		
1044.5	4	SP-SM	13		480	1548	1.32	1.54	1.05	1.2	0.75		10	0.87	1.02				0.993	**0.140**	2.00		
1044	4.5	SP-SM	13		540	1608	1.32	1.51	1.05	1.2	0.75		10	0.87	1.02				0.991	**0.151**	2.00		
1043.5	5	SP-SM	13		600	1668	1.32	1.48	1.05	1.2	0.75		10	0.87	1.02				0.990	**0.162**	2.00		
1043	5.5	SP-SM	13		660	1728	1.32	1.46	1.05	1.2	0.75		10	0.87	1.02				0.989	**0.172**	2.00		
1042.5	6	SP-SM	13		720	1788	1.32	1.43	1.05	1.2	0.75		10	0.87	1.02				0.988	**0.181**	2.00		
1042	6.5	SP-SM	13		780	1848	1.32	1.40	1.05	1.2	0.75		10	0.87	1.02				0.987	**0.189**	2.00		
1041.5	7	SP-SM	13		840	1908	1.32	1.38	1.05	1.2	0.75		10	0.87	1.02				0.986	**0.197**	2.00		
1041	7.5	SP-SM	13		900	1968	1.32	1.35	1.05	1.2	0.75		10	0.87	1.02				0.985	**0.204**	2.00		
1040.5	8	SP-SM	13		960	2028	1.32	1.33	1.05	1.2	0.75		10	0.87	1.02				0.983	**0.211**	2.00		
1040	8.5	SP	17		1020	2088	1.32	1.31	1.05	1.2	0.75		5	0.00	1.00				0.982	**0.218**	2.00		
1039.5	9	SP	17		1080	2148	1.32	1.29	1.05	1.2	0.75		5	0.00	1.00				0.981	**0.224**	2.00		
1039	9.5	SP	17		1140	2208	1.32	1.27	1.05	1.2	0.75		5	0.00	1.00				0.980	**0.230**	2.00		
1038.5	10	SP	17		1200	2268	1.32	1.24	1.05	1.2	0.75		5	0.00	1.00				0.979	**0.235**	2.00		
1038	10.5	SP	17		1260	2328	1.32	1.23	1.05	1.2	0.75		5	0.00	1.00				0.978	**0.240**	2.00		
1037.5	11	SP	17		1320	2388	1.32	1.21	1.05	1.2	0.75		5	0.00	1.00				0.977	**0.245**	2.00		
1037	11.5	SP	17		1380	2448	1.32	1.19	1.05	1.2	0.75		5	0.00	1.00				0.976	**0.250**	2.00		
1036.5	12	SP	17		1440	2508	1.32	1.17	1.05	1.2	0.75		5	0.00	1.00				0.975	**0.254**	2.00		
1036	12.5	SP	21		1500	2568	1.32	1.15	1.05	1.2	0.75		5	0.00	1.00				0.974	**0.258**	2.00		
1035.5	13	SP	21		1560	2628	1.32	1.14	1.05	1.2	0.85		5	0.00	1.00				0.973	**0.262**	2.00		
1035	13.5	SP	21		1620	2688	1.32	1.12	1.05	1.2	0.85		5	0.00	1.00				0.972	**0.266**	2.00		
1034.5	14	SP	21		1680	2748	1.32	1.10	1.05	1.2	0.85		5	0.00	1.00				0.971	**0.269**	2.00		
1034	14.5	SP	21		1740	2808	1.32	1.09	1.05	1.2	0.85		5	0.00	1.00				0.970	**0.273**	2.00		
1033.5	15	SP	21		1800	2868	1.32	1.07	1.05	1.2	0.85		9	0.62	1.02				0.969	**0.276**	2.00		
1033	15.5	SP	21		1860	2928	1.32	1.06	1.05	1.2	0.85		9	0.56	1.02				0.967	**0.279**	2.00		
1032.5	16	SP	21		1920	2988	1.32	1.04	1.05	1.2	0.85		9	0.56	1.02				0.966	**0.282**	2.00		
1032	16.5	SP	21		1980	3048	1.32	1.03	1.05	1.2	0.85		9	0.56	1.02				0.965	**0.285**	2.00		
1031.5	17	SP	21		2040	3108	1.32	1.02	1.05	1.2	0.85		9	0.56	1.02				0.964	**0.287**	2.00		
1031	17.5	SP	21		2100	3168	1.32	1.00	1.05	1.2	0.85		9	0.56	1.02				0.963	**0.290**	2.00		
1030.5	18	SP	21		2160	3228	1.32	0.99	1.05	1.2	0.85		9	0.56	1.02				0.962	**0.292**	2.00		
1030	18.5	SP	21		2220	3288	1.32	0.98	1.05	1.2	0.85		9	0.56	1.02				0.961	**0.294**	2.00		
1029.5	19	SP	21		2280	3342	1.32	0.97	1.05	1.2	0.85	28.7	9	0.56	1.02	1.0	**30**	0.449	0.959	**0.297**	1.91	0.000	0.000
1029	19.5	SP	21		2340	3371	1.32	0.95	1.05	1.2	0.85	28.3	9	0.56	1.02	1.0	**29**	0.429	0.958	**0.302**	1.80	0.000	0.000
1028.5	20	SP	21		2400	3400	1.32	0.94	1.05	1.2	0.95	31.3	9	0.56	1.02	1.1	**32**		0.957	**0.307**	2.00		
1028	20.5	SP	13		2460	3429	1.32	0.93	1.05	1.2	0.95	19.1	22	3.97	1.10	5.8	**25**	0.290	0.956	**0.311**	1.18	0.001	0.005
1027.5	21	SP	13		2520	3458	1.32	0.92	1.05	1.2	0.95	18.9	22	3.97	1.10	5.8	**25**	0.285	0.954	**0.316**	1.14	0.001	0.005
1027	21.5	SP	13		2580	3487	1.32	0.91	1.05	1.2	0.95	18.7	22	3.97	1.10	5.7	**24**	0.281	0.953	**0.320**	1.11	0.002	0.010
1026.5	22	SP	13		2640	3516	1.32	0.90	1.05	1.2	0.95	18.5	22	3.97	1.10	5.7	**24**	0.277	0.951	**0.324**	1.08	0.002	0.010
1026	22.5	SP	13		2700	3545	1.32	0.89	1.05	1.2	0.95	18.3	22	3.93	1.09	5.6	**24**	0.271	0.950	**0.329**	1.04	0.003	0.017
1025.5	23	ML	10	YES	2760	3574	1.32	0.88	1.05	1.2	0.95	13.9	35	5.00	1.20	7.8	**22**	0.237	0.948	**0.333**	0.90	0.014	0.000
1025	23.5	ML	10	YES	2789	3603	1.32	0.87	1.05	1.2	0.95	13.8	35	5.00	1.20	7.8	**22**	0.236	0.947	**0.337**	0.89	0.014	0.000
1024.5	24	ML	10	YES	2818	3632	1.32	0.87	1.05	1.2	0.95	13.7	35	5.00	1.20	7.7	**21**	0.235	0.945	**0.340**	0.87	0.014	0.000
1024	24.5	ML	10	YES	2847	3661	1.32	0.86	1.05	1.2	0.95	13.7	35	5.00	1.20	7.7	**21**	0.233	0.944	**0.344**	0.86	0.014	0.000
1023.5	25	ML	10	YES	2876	3690	1.32	0.86	1.05	1.2	0.95	13.6	35	5.00	1.20	7.7	**21**	0.232	0.942	**0.348**	0.85	0.014	0.000
1023	25.5	ML	10	YES	2905	3719	1.32	0.86	1.05	1.2	0.95	13.5	35	5.00	1.20	7.7	**21**	0.231	0.940	**0.351**	0.83	0.014	0.000
1022.5	26	ML	10	YES	2934	3748	1.32	0.85	1.05	1.2	0.95	13.4	35	5.00	1.20	7.7	**21**	0.230	0.938	**0.355**	0.82	0.014	0.000
1022	26.5	ML	10	YES	2963	3777	1.32	0.85	1.05	1.2	0.95	13.4	35	5.00	1.20	7.7	**21**	0.229	0.936	**0.358**	0.81	0.014	0.000
1021.5	27	ML	10	YES	2992	3806	1.32	0.84	1.05	1.2	0.95	13.3	35	5.00	1.20	7.7	**21**	0.228	0.934	**0.361**	0.80	0.014	0.000
1021	27.5	ML	10	YES	3021	3835	1.32	0.84	1.05	1.2	0.95	13.2	35	5.00	1.20	7.6	**21**	0.227	0.932	**0.364**	0.79	0.014	0.000
1020.5	28	ML	10	YES	3050	3864	1.32	0.83	1.05	1.2	0.95	13.2	35	5.00	1.20	7.6	**21**	0.226	0.930	**0.367**	0.78	0.014	0.000
1020	28.5	ML	10	YES	3079	3893	1.32	0.83	1.05	1.2	0.95	13.1	35	5.00	1.20	7.6	**21**	0.224	0.928	**0.370**	0.77	0.014	0.000
1019.5	29	ML	10	YES	3108	3922	1.32	0.82	1.05	1.2	0.95	13.0	35	5.00	1.20	7.6	**21**	0.223	0.925	**0.373**	0.76	0.014	0.000
1019	29.5	ML	10	YES	3137	3951	1.32	0.82	1.05	1.2	0.95	13.0	35	5.00	1.20	7.6	**21**	0.222	0.923	**0.376**	0.75	0.014	0.000

SPT Liquefaction Spreadsheet

JOB NAME	Prpoosed Temecula Hospital	Boring	GDI-5		
DATE	8/12/2010	*y*	120	pcf	
BY	CJZ	GW level	23	ft	
CHECKED BY		HHGL	17.4	ft	
DATE		GS Elevation	1050	(assumed)	
		LFFE	1057.4		
			Magnitue	a max	
			6.84	0.88	
		MSF	1.27		

Total Settlement 0.76 INCHES

Elevation (MSL)	Depth (feet)	Soil Type	Nfield	Boulanger and Idriss (2006)	σo' (psf) current	σo' (psf) HHGWL	C_E	C_N	C_B	C_S	C_R	$(N_1)_{60}$	Fines Correction			ΔN	$(N_1)_{60}$	CRR 1998 eq.	Rd	CSR	FOS	SETTLEMENT (%)	SETTLEMENT (inches)
					psf	psf	energy	stress	5" diam	w/out liner	rod	interim Corr.	%fines	Alpha	Beta			<N=30					
1049	1	ML	4		120	1008	1.32	1.75	1.05	1.2	0.75		35	5.00	1.20				1.000	**0.054**	2.00		
1048.5	1.5	ML	4		180	1068	1.32	1.71	1.05	1.2	0.75		35	5.00	1.20				0.998	**0.076**	2.00		
1048	2	ML	4		240	1128	1.32	1.68	1.05	1.2	0.75		35	5.00	1.20				0.997	**0.096**	2.00		
1047.5	2.5	ML	4		300	1188	1.32	1.64	1.05	1.2	0.75		35	5.00	1.20				0.996	**0.114**	2.00		
1047	3	ML	4		360	1248	1.32	1.61	1.05	1.2	0.75		35	5.00	1.20				0.995	**0.130**	2.00		
1046.5	3.5	ML	4		420	1308	1.32	1.57	1.05	1.2	0.75		35	5.00	1.20				0.994	**0.145**	2.00		
1046	4	ML	4		480	1368	1.32	1.54	1.05	1.2	0.75		35	5.00	1.20				0.993	**0.158**	2.00		
1045.5	4.5	ML	4		540	1428	1.32	1.51	1.05	1.2	0.75		35	5.00	1.20				0.991	**0.170**	2.00		
1045	5	ML	4		600	1488	1.32	1.48	1.05	1.2	0.75		35	5.00	1.20				0.990	**0.181**	2.00		
1044.5	5.5	ML	11		660	1548	1.32	1.46	1.05	1.2	0.75		35	5.00	1.20				0.989	**0.191**	2.00		
1044	6	ML	11		720	1608	1.32	1.43	1.05	1.2	0.75		35	5.00	1.20				0.988	**0.201**	2.00		
1043.5	6.5	ML	11		780	1668	1.32	1.40	1.05	1.2	0.75		35	5.00	1.20				0.987	**0.210**	2.00		
1043	7	ML	11		840	1728	1.32	1.38	1.05	1.2	0.75		35	5.00	1.20				0.986	**0.218**	2.00		
1042.5	7.5	SP	19		900	1788	1.32	1.35	1.05	1.2	0.75		5	0.00	1.00				0.985	**0.225**	2.00		
1042	8	SP	19		960	1848	1.32	1.33	1.05	1.2	0.75		5	0.00	1.00				0.983	**0.232**	2.00		
1041.5	8.5	SP	19		1020	1908	1.32	1.31	1.05	1.2	0.75		5	0.00	1.00				0.982	**0.238**	2.00		
1041	9	SP	19		1080	1968	1.32	1.29	1.05	1.2	0.75		5	0.00	1.00				0.981	**0.245**	2.00		
1040.5	9.5	SP	19		1140	2028	1.32	1.27	1.05	1.2	0.75		5	0.00	1.00				0.980	**0.250**	2.00		
1040	10	SP	19		1200	2088	1.32	1.24	1.05	1.2	0.75		5	0.00	1.00				0.979	**0.255**	2.00		
1039.5	10.5	SP	21		1260	2148	1.32	1.23	1.05	1.2	0.75		5	0.00	1.00				0.978	**0.260**	2.00		
1039	11	SP	21		1320	2208	1.32	1.21	1.05	1.2	0.75		5	0.00	1.00				0.977	**0.265**	2.00		
1038.5	11.5	SP	21		1380	2268	1.32	1.19	1.05	1.2	0.75		5	0.00	1.00				0.976	**0.270**	2.00		
1038	12	SP	21		1440	2328	1.32	1.17	1.05	1.2	0.75		5	0.00	1.00				0.975	**0.274**	2.00		
1037.5	12.5	SP	21		1500	2388	1.32	1.15	1.05	1.2	0.75		5	0.00	1.00				0.974	**0.278**	2.00		
1037	13	SP	27		1560	2448	1.32	1.14	1.05	1.2	0.85		5	0.00	1.00				0.973	**0.281**	2.00		
1036.5	13.5	SP	27		1620	2508	1.32	1.12	1.05	1.2	0.85		5	0.00	1.00				0.972	**0.285**	2.00		
1036	14	SP	27		1680	2568	1.32	1.10	1.05	1.2	0.85		5	0.00	1.00				0.971	**0.288**	2.00		
1035.5	14.5	SP	27		1740	2628	1.32	1.09	1.05	1.2	0.85		5	0.00	1.00				0.970	**0.291**	2.00		
1035	15	SP	27		1800	2688	1.32	1.07	1.05	1.2	0.85		5	0.00	1.00				0.969	**0.294**	2.00		
1034.5	15.5	SP	51		1860	2748	1.32	1.06	1.05	1.2	0.85		5	0.00	1.00				0.967	**0.297**	2.00		
1034	16	SP	51		1920	2808	1.32	1.04	1.05	1.2	0.85		5	0.00	1.00				0.966	**0.300**	2.00		
1033.5	16.5	SP	51		1980	2868	1.32	1.03	1.05	1.2	0.85		5	0.00	1.00				0.965	**0.303**	2.00		
1033	17	SP	51		2040	2928	1.32	1.02	1.05	1.2	0.85		5	0.00	1.00				0.964	**0.305**	2.00		
1032.5	17.5	SP	51		2100	2982	1.32	1.00	1.05	1.2	0.85	72.3	5	0.00	1.00	0.1	**72**		0.963	**0.308**	2.00		
1032	18	SP	30		2160	3011	1.32	0.99	1.05	1.2	0.85	42.0	5	0.00	1.00	0.1	**42**		0.962	**0.313**	2.00		
1031.5	18.5	SP	30		2220	3040	1.32	0.98	1.05	1.2	0.85	41.5	5	0.00	1.00	0.1	**42**		0.961	**0.319**	2.00		
1031	19	SP	30		2280	3069	1.32	0.97	1.05	1.2	0.85	41.0	5	0.00	1.00	0.1	**41**		0.959	**0.324**	2.00		
1030.5	19.5	SP	30		2340	3098	1.32	0.95	1.05	1.2	0.85	40.5	5	0.00	1.00	0.1	**41**		0.958	**0.329**	2.00		
1030	20	SP	30		2400	3127	1.32	0.94	1.05	1.2	0.95	44.7	5	0.00	1.00	0.1	**45**		0.957	**0.333**	2.00		
1029.5	20.5	ML	9		2460	3156	1.32	0.93	1.05	1.2	0.95	13.2	65	5.00	1.20	7.6	**21**	0.227	0.956	**0.338**	0.85	0.014	0.084
1029	21	ML	9		2520	3185	1.32	0.92	1.05	1.2	0.95	13.1	65	5.00	1.20	7.6	**21**	0.224	0.954	**0.343**	0.83	0.014	0.084
1028.5	21.5	ML	9		2580	3214	1.32	0.91	1.05	1.2	0.95	12.9	65	5.00	1.20	7.6	**21**	0.222	0.953	**0.347**	0.81	0.014	0.084
1028	22	ML	9		2640	3243	1.32	0.90	1.05	1.2	0.95	12.8	65	5.00	1.20	7.6	**20**	0.220	0.951	**0.352**	0.79	0.014	0.084
1027.5	22.5	ML	9	YES	2700	3272	1.32	0.89	1.05	1.2	0.95	12.6	65	5.00	1.20	7.5	**20**	0.217	0.950	**0.356**	0.77	0.014	0.000
1027	23	ML	9	YES	2760	3301	1.32	0.88	1.05	1.2	0.95	12.5	69	5.00	1.20	7.5	**20**	0.215	0.948	**0.360**	0.76	0.015	0.000
1026.5	23.5	ML	9	YES	2789	3330	1.32	0.87	1.05	1.2	0.95	12.4	69	5.00	1.20	7.5	**20**	0.214	0.947	**0.364**	0.74	0.015	0.000
1026	24	ML	9	YES	2818	3359	1.32	0.87	1.05	1.2	0.95	12.4	69	5.00	1.20	7.5	**20**	0.213	0.945	**0.368**	0.73	0.015	0.000
1025.5	24.5	ML	9	YES	2847	3388	1.32	0.86	1.05	1.2	0.95	12.3	69	5.00	1.20	7.5	**20**	0.212	0.944	**0.372**	0.72	0.015	0.000
1025	25	SP	21		2876	3417	1.32	0.86	1.05	1.2	0.95	28.5	11	1.17	1.03	1.9	**30**		0.942	**0.375**	2.00		
1024.5	25.5	SP	21		2905	3446	1.32	0.86	1.05	1.2	0.95	28.4	11	1.17	1.03	1.9	**30**		0.940	**0.379**	2.00		
1024	26	SP	21		2934	3475	1.32	0.85	1.05	1.2	0.95	28.2	11	1.17	1.03	1.9	**30**		0.938	**0.382**	2.00		
1023.5	26.5	SP	21		2963	3504	1.32	0.85	1.05	1.2	0.95	28.1	11	1.17	1.03	1.9	**30**	0.466	0.936	**0.386**	1.53	0.000	0.001
1023	27	SP	21		2992	3533	1.32	0.84	1.05	1.2	0.95	27.9	11	1.04	1.02	1.7	**30**	0.444	0.934	**0.389**	1.44	0.000	0.001
1022.5	27.5	SP	21		3021	3562	1.32	0.84	1.05	1.2	0.95	27.8	11	1.04	1.02	1.7	**29**	0.435	0.932	**0.392**	1.40	0.000	0.002
1022	28	SP	30		3050	3591	1.32	0.83	1.05	1.2	0.95	39.5	5	0.00	1.00	0.0	**40**		0.930	**0.395**	2.00		
1021.5	28.5	SP	30		3079	3620	1.32	0.83	1.05	1.2	0.95	39.3	5	0.00	1.00	0.0	**39**		0.928	**0.398**	2.00		
1021	29	SP	30		3108	3649	1.32	0.82	1.05	1.2	0.95	39.1	5	0.00	1.00	0.0	**39**		0.925	**0.401**	2.00		
1020.5	29.5	SP	30		3137	3678	1.32	0.82	1.05	1.2	0.95	38.9	5	0.00	1.00	0.0	**39**		0.923	**0.403**	2.00		

1020	30	SP	30		3166	3707	1.32	0.82	1.05	1.2	0.95	38.7	5	0.00	1.00	0.0	39		0.921	0.406	2.00				
1019.5	30.5	SP-SM	18		3195	3736	1.32	0.81	1.05	1.2	0.95	23.1	10	0.87	1.02	1.4	24	0.282	0.918	0.408	0.87	0.014	0.084		
1019	31	SP-SM	18		3224	3765	1.32	0.81	1.05	1.2	0.95	23.0	10	0.87	1.02	1.4	24	0.279	0.915	0.411	0.86	0.014	0.084		
1018.5	31.5	SP-SM	18		3253	3794	1.32	0.80	1.05	1.2	0.95	22.9	10	0.87	1.02	1.4	24	0.277	0.913	0.413	0.85	0.014	0.084		
1018	32	SP-SM	18		3282	3823	1.32	0.80	1.05	1.2	0.95	22.7	10	0.87	1.02	1.4	24	0.275	0.910	0.415	0.84	0.014	0.084		
1017.5	32.5	SP-SM	18		3311	3852	1.32	0.80	1.05	1.2	0.95	22.6	10	0.87	1.02	1.4	24	0.273	0.907	0.417	0.83	0.014	0.084		
1017	33	CL	12	YES	3340	3881	1.32	0.79	1.05	1.2	1	15.8	10	0.87	1.02	1.2	17	0.181	0.904	0.419	0.55	0.016	0.000		
1016.5	33.5	CL	12	YES	3369	3910	1.32	0.79	1.05	1.2	1	15.7	10	0.87	1.02	1.2	17	0.180	0.901	0.420	0.54	0.016	0.000		
1016	34	CL	12	YES	3398	3939	1.32	0.78	1.05	1.2	1	15.6	10	0.87	1.02	1.2	17	0.179	0.897	0.422	0.54	0.016	0.000		
1015.5	34.5	CL	12	YES	3427	3968	1.32	0.78	1.05	1.2	1	15.6	10	0.87	1.02	1.2	17	0.178	0.894	0.424	0.53	0.016	0.000		
1015	35	CL	12	YES	3456	3997	1.32	0.78	1.05	1.2	1	15.5	10	0.87	1.02	1.2	17	0.178	0.891	0.425	0.53	0.016	0.000		
1014.5	35.5	SP-SM	40		3485	4026	1.32	0.77	1.05	1.2	1	51.4	10	0.87	1.02	2.0	53		0.887	0.426	2.00				
1014	36	SP-SM	40		3514	4055	1.32	0.77	1.05	1.2	1	51.2	10	0.87	1.02	2.0	53		0.883	0.427	2.00				
1013.5	36.5	SP-SM	40		3543	4084	1.32	0.77	1.05	1.2	1	50.9	10	0.87	1.02	2.0	53		0.880	0.428	2.00				
1013	37	SP-SM	40		3572	4113	1.32	0.76	1.05	1.2	1	50.7	10	0.87	1.02	2.0	53		0.876	0.429	2.00				
1012.5	37.5	SP-SM	40		3601	4142	1.32	0.76	1.05	1.2	1	50.4	10	0.87	1.02	2.0	52		0.872	0.430	2.00				
1012	38	SM-SP	36		3630	4171	1.32	0.75	1.05	1.2	1	45.2	10	0.87	1.02	1.8	47		0.868	0.431	2.00				
1011.5	38.5	SM-SP	36		3659	4200	1.32	0.75	1.05	1.2	1	45.0	10	0.87	1.02	1.8	47		0.864	0.431	2.00				
1011	39	SM-SP	36		3688	4229	1.32	0.75	1.05	1.2	1	44.8	10	0.87	1.02	1.8	47		0.860	0.432	2.00				
1010.5	39.5	SM-SP	36		3717	4258	1.32	0.74	1.05	1.2	1	44.6	10	0.87	1.02	1.8	46		0.855	0.432	2.00				
1010	40	SM-SP	36		3746	4287	1.32	0.74	1.05	1.2	1	44.3	10	0.87	1.02	1.8	46		0.851	0.433	2.00				
1009.5	40.5	SM-SP	34		3775	4316	1.32	0.74	1.05	1.2	1	41.1	10	0.87	1.02	1.8	43		0.847	0.433	2.00				
1009	41	SM-SP	34		3804	4345	1.32	0.73	1.05	1.2	1	41.5	10	0.87	1.02	1.8	43		0.842	0.433	2.00				
1008.5	41.5	SM-SP	34		3833	4374	1.32	0.73	1.05	1.2	1	41.3	10	0.87	1.02	1.8	43		0.837	0.433	2.00				
1008	42	SM-SP	34		3862	4403	1.32	0.73	1.05	1.2	1	41.1	10	0.87	1.02	1.8	43		0.833	0.433	2.00				
1007.5	42.5	SM-SP	34		3891	4432	1.32	0.72	1.05	1.2	1	40.9	10	0.87	1.02	1.8	43		0.828	0.433	2.00				
1007	43	SM-SP	34		3920	4461	1.32	0.72	1.05	1.2	1	40.8	10	0.87	1.02	1.8	43		0.823	0.432	2.00				
1006.5	43.5	ML	34		3949	4490	1.32	0.72	1.05	1.2	1	40.6	35	5.00	1.20	13.1	54		0.818	0.432	2.00				
1006	44	ML	34		3978	4519	1.32	0.71	1.05	1.2	1	40.4	35	5.00	1.20	13.1	53		0.814	0.432	2.00				
1005.5	44.5	SP	50		4007	4548	1.32	0.71	1.05	1.2	1	59.1	5	0.00	1.00	0.1	59		0.809	0.431	2.00				
1005	45	SP	50		4036	4577	1.32	0.71	1.05	1.2	1	58.9	5	0.00	1.00	0.1	59		0.804	0.431	2.00				
1004.5	45.5	SP	50		4065	4606	1.32	0.70	1.05	1.2	1	58.6	5	0.00	1.00	0.1	59		0.799	0.430	2.00				
1004	46	SP	50		4094	4635	1.32	0.70	1.05	1.2	1	58.4	5	0.00	1.00	0.1	58		0.794	0.429	2.00				
1003.5	46.5	SP	50		4123	4664	1.32	0.70	1.05	1.2	1	58.1	5	0.00	1.00	0.1	58		0.788	0.428	2.00				
1003	47	SP	50		4152	4693	1.32	0.70	1.05	1.2	1	57.9	5	0.00	1.00	0.1	58		0.783	0.427	2.00				
1002.5	47.5	SP	50		4181	4722	1.32	0.69	1.05	1.2	1	57.6	5	0.00	1.00	0.1	58		0.778	0.427	2.00				
1002	48	SP	50		4210	4751	1.32	0.69	1.05	1.2	1	57.4	5	0.00	1.00	0.1	57		0.773	0.426	2.00				
1001.5	48.5	SP	50		4239	4780	1.32	0.69	1.05	1.2	1	57.1	5	0.00	1.00	0.1	57		0.768	0.425	2.00				
1001	49	SP	50		4268	4809	1.32	0.68	1.05	1.2	1	56.9	5	0.00	1.00	0.1	57		0.763	0.424	2.00				
1000.5	49.5	SP	50		4297	4838	1.32	0.68	1.05	1.2	1	56.6	5	0.00	1.00	0.1	57		0.758	0.422	2.00				
1000	50	SP	50		4326	4867	1.32	0.68	1.05	1.2	1	56.4	5	0.00	1.00	0.1	56		0.753	0.421	2.00				
999.5	50.5	SP	50		4355	4896	1.32	0.68	1.05	1.2	1	56.2	5	0.00	1.00	0.1	56		0.748	0.420	2.00				
999	51	SP	50		4384	4925	1.32	0.67	1.05	1.2	1	55.9	5	0.00	1.00	0.1	56		0.743	0.419	2.00				
998.5	51.5	SP	50		4413	4954	1.32	0.67	1.05	1.2	1	55.7	5	0.00	1.00	0.1	56		0.738	0.418	2.00				
998	52	SP	50		4442	4983	1.32	0.67	1.05	1.2	1	55.5	5	0.00	1.00	0.1	56		0.733	0.417	2.00				
997.5	52.5	SP	50		4471	5012	1.32	0.66	1.05	1.2	1	55.2	5	0.00	1.00	0.1	55		0.728	0.415	2.00				
997	53	SP	50		4500	5041	1.32	0.66	1.05	1.2	1	55.0	5	0.00	1.00	0.1	55		0.723	0.414	2.00				
996.5	53.5	SP	50		4529	5070	1.32	0.66	1.05	1.2	1	54.8	5	0.00	1.00	0.1	55		0.718	0.413	2.00				
996	54	SP	50		4558	5099	1.32	0.66	1.05	1.2	1	54.5	5	0.00	1.00	0.1	55		0.713	0.411	2.00				
995.5	54.5	SP	50		4587	5128	1.32	0.65	1.05	1.2	1	54.3	5	0.00	1.00	0.1	54		0.708	0.410	2.00				
995	55	SP	50		4616	5157	1.32	0.65	1.05	1.2	1	54.1	5	0.00	1.00	0.1	54		0.703	0.409	2.00				
994.5	55.5	SP	50		4645	5186	1.32	0.65	1.05	1.2	1	53.9	5	0.00	1.00	0.1	54		0.699	0.407	2.00				
994	56	SP	50		4674	5215	1.32	0.65	1.05	1.2	1	53.7	5	0.00	1.00	0.1	54		0.694	0.406	2.00				
993.5	56.5	SP	50		4703	5244	1.32	0.64	1.05	1.2	1	53.5	5	0.00	1.00	0.1	54		0.689	0.405	2.00				
993	57	SP	50		4732	5273	1.32	0.64	1.05	1.2	1	53.2	5	0.00	1.00	0.1	53		0.685	0.403	2.00				
992.5	57.5	SP	50		4761	5302	1.32	0.64	1.05	1.2	1	53.0	5	0.00	1.00	0.1	53		0.680	0.402	2.00				
992	58	ML	50		4790	5331	1.32	0.64	1.05	1.2	1	52.8	35	5.00	1.20	15.6	68		0.676	0.401	2.00				
991.5	58.5	ML	50		4819	5360	1.32	0.63	1.05	1.2	1	52.6	35	5.00	1.20	15.5	68		0.672	0.399	2.00				
991	59	SP	50		4848	5389	1.32	0.63	1.05	1.2	1	52.4	5	0.00	1.00	0.1	52		0.668	0.398	2.00				
990.5	59.5	SP	50		4877	5418	1.32	0.63	1.05	1.2	1	52.2	5	0.00	1.00	0.1	52		0.663	0.397	2.00				
990	60	SP	50		4906	5447	1.32	0.63	1.05	1.2	1	52.0	5	0.00	1.00	0.1	52		0.659	0.396	2.00				
989.5	60.5	SP	50		4935	5476	1.32	0.62	1.05	1.2	1	51.8	5	0.00	1.00	0.1	52		0.655	0.394	2.00				
989	61	SP	50		4964	5505	1.32	0.62	1.05	1.2	1	51.6	5	0.00	1.00	0.1	52		0.651	0.393	2.00				
988.5	61.5	SP	50		4993	5534	1.32	0.62	1.05	1.2	1	51.4	5	0.00	1.00	0.1	51		0.647	0.392	2.00				
988	62	SP	50		5022	5563	1.32	0.62	1.05	1.2	1	51.2	5	0.00	1.00	0.1	51		0.644	0.391	2.00				
987.5	62.5	SP	50		5051	5592	1.32	0.61	1.05	1.2	1	51.0	5	0.00	1.00	0.1	51		0.640	0.390	2.00				
987	63	SP	50		5080	5621	1.32	0.61	1.05	1.2	1	50.8	5	0.00	1.00	0.1	51		0.636	0.388	2.00				
986.5	63.5	SP	50		5109	5650	1.32	0.61	1.05	1.2	1	50.6	5	0.00	1.00	0.1	51		0.632	0.387	2.00				
986	64	SP	50		5138	5679	1.32	0.61	1.05	1.2	1	50.4	5	0.00	1.00	0.1	50		0.629	0.386	2.00				
985.5	64.5	SP	50		5167	5708	1.32	0.60	1.05	1.2	1	50.2	5	0.00	1.00	0.1	50		0.625	0.385	2.00				
985	65	SP	50		5196	5737	1.32	0.60	1.05	1.2	1	50.0	5	0.00	1.00	0.1	50		0.622	0.384	2.00				
984.5	65.5	SP	50		5225	5766	1.32	0.60	1.05	1.2	1	49.9	5	0.00	1.00	0.1	50		0.619	0.383	2.00				
984	66	SP	50		5254	5795	1.32	0.60	1.05	1.2	1	49.7	5	0.00	1.00	0.1	50		0.616	0.382	2.00				
983.5	66.5	SP	50		5283	5824	1.32	0.60	1.05	1.2	1	49.5	5	0.00	1.00	0.1	50		0.612	0.381	2.00				
983	67	SP	50		5312	5853	1.32	0.59	1.05	1.2	1	49.3	5	0.00	1.00	0.1	49		0.609	0.380	2.00				
982.5	67.5	SP	50		5341	5882	1.32	0.59	1.05	1.2	1	49.1	5	0.00	1.00	0.1	49		0.606	0.379	2.00				
982	68	SP	50		5370	5911	1.32	0.59	1.05	1.2	1	48.9	5	0.00	1.00	0.1	49		0.603	0.378	2.00				
981.5	68.5	SP	50		5399	5940	1.32	0.59	1.05	1.2	1	48.8	5	0.00	1.00	0.1	49		0.600	0.377	2.00				
981	69	SP	50		5428	5969	1.32	0.58	1.05	1.2	1	48.6	5	0.00	1.00	0.1	49		0.597	0.376	2.00				
980.5	69.5	SP	50		5457	5998	1.32	0.58	1.05	1.2	1	48.4	5	0.00	1.00	0.1	48		0.595	0.375	2.00				
980	70	SP	50		5486	6027	1.32	0.58	1.05	1.2	1	48.2	5	0.00	1.00	0.1	48		0.592	0.375	2.00				
																									0.760

SPT Liquefaction Spreadsheet

JOB NAME	Prpoosed Temecula Hospital	Boring	GDI-6		
DATE	8/12/2010	*y*	120	pcf	
BY	CJZ	GW level	27.5	ft	
CHECKED BY		HHGL	11.9	ft	
DATE		GS Elevation	1055.5		
		LFFE	1057.4		

Magnitue	a max
6.84	0.88

MSF 1.27

Total Settlement 0.07 INCHES

Elevation (MSL)	Depth (feet)	Soil Type	Nfield	Boulanger and Idress (2006)	σo' (psf) current	σo' (psf) HHGWL	C_E	C_N	C_B	C_S	C_R	$(N_1)_{60}$	Fines Correction			ΔN	$(N_1)_{60}$	CRR 1998 eq.	Rd	CSR	FOS	SETTLEMENT (%)	SETTLEMENT (inches)
					psf	psf	energy	stress	5" diam	w/out liner	rod	interim Corr.	%fines	Alpha	Beta			<N=30					
1054.5	1	SP-SM	30		120	348	1.32	1.75	1.05	1.2	0.75		5	0.00	1.00				1.000	**0.156**	2.00		
1054	1.5	SP-SM	30		180	408	1.32	1.71	1.05	1.2	0.75		5	0.00	1.00				0.998	**0.200**	2.00		
1053.5	2	SP-SM	30		240	468	1.32	1.68	1.05	1.2	0.75		5	0.00	1.00				0.997	**0.232**	2.00		
1053	2.5	SP-SM	30		300	528	1.32	1.64	1.05	1.2	0.75		5	0.00	1.00				0.996	**0.257**	2.00		
1052.5	3	SP-SM	30		360	588	1.32	1.61	1.05	1.2	0.75		5	0.00	1.00				0.995	**0.277**	2.00		
1052	3.5	SP-SM	30		420	648	1.32	1.57	1.05	1.2	0.75		5	0.00	1.00				0.994	**0.292**	2.00		
1051.5	4	SP-SM	30		480	708	1.32	1.54	1.05	1.2	0.75		5	0.00	1.00				0.993	**0.306**	2.00		
1051	4.5	SP-SM	30		540	768	1.32	1.51	1.05	1.2	0.75		5	0.00	1.00				0.991	**0.317**	2.00		
1050.5	5	SP	20		600	828	1.32	1.48	1.05	1.2	0.75		5	0.00	1.00				0.990	**0.326**	2.00		
1050	5.5	SP	20		660	888	1.32	1.46	1.05	1.2	0.75		5	0.00	1.00				0.989	**0.334**	2.00		
1049.5	6	SP	20		720	948	1.32	1.43	1.05	1.2	0.75		5	0.00	1.00				0.988	**0.341**	2.00		
1049	6.5	SP	20		780	1008	1.32	1.40	1.05	1.2	0.75		5	0.00	1.00				0.987	**0.347**	2.00		
1048.5	7	SP	20		840	1068	1.32	1.38	1.05	1.2	0.75		5	0.00	1.00				0.986	**0.352**	2.00		
1048	7.5	SP	20		900	1128	1.32	1.35	1.05	1.2	0.75		5	0.00	1.00				0.985	**0.357**	2.00		
1047.5	8	SP	12		960	1188	1.32	1.33	1.05	1.2	0.75		5	0.00	1.00				0.983	**0.361**	2.00		
1047	8.5	SP	12		1020	1248	1.32	1.31	1.05	1.2	0.75		5	0.00	1.00				0.982	**0.365**	2.00		
1046.5	9	SP	12		1080	1308	1.32	1.29	1.05	1.2	0.75		5	0.00	1.00				0.981	**0.368**	2.00		
1046	9.5	SP	12		1140	1368	1.32	1.27	1.05	1.2	0.75		5	0.00	1.00				0.980	**0.371**	2.00		
1045.5	10	SP	12		1200	1428	1.32	1.24	1.05	1.2	0.75		19	3.43	1.07				0.979	**0.374**	2.00		
1045	10.5	SP	20		1260	1488	1.32	1.23	1.05	1.2	0.75		19	3.43	1.07				0.978	**0.376**	2.00		
1044.5	11	SP	20		1320	1548	1.32	1.21	1.05	1.2	0.75		19	3.43	1.07				0.977	**0.378**	2.00		
1044	11.5	SP	20		1380	1608	1.32	1.19	1.05	1.2	0.75		19	3.43	1.07				0.976	**0.380**	2.00		
1043.5	12	SP	20		1440	1662	1.32	1.17	1.05	1.2	0.75	29.2	19	3.43	1.07	5.6	**35**		0.975	**0.384**	2.00		
1043	12.5	SP	17		1500	1691	1.32	1.15	1.05	1.2	0.75	24.4	11	1.21	1.03	1.9	**26**	0.320	0.974	**0.392**	1.03	0.003	0.017
1042.5	13	SP	17		1560	1720	1.32	1.14	1.05	1.2	0.85	27.3	11	1.21	1.03	1.9	**29**	0.421	0.973	**0.401**	1.33	0.000	0.002
1042	13.5	SP	17		1620	1749	1.32	1.12	1.05	1.2	0.85	26.9	11	1.21	1.03	1.9	**29**	0.402	0.972	**0.409**	1.24	0.001	0.005
1041.5	14	SP	17		1680	1778	1.32	1.10	1.05	1.2	0.85	26.5	11	1.21	1.03	1.9	**28**	0.386	0.971	**0.416**	1.17	0.001	0.005
1041	14.5	SP	17		1740	1807	1.32	1.09	1.05	1.2	0.85	26.1	11	1.21	1.03	1.9	**28**	0.371	0.970	**0.424**	1.11	0.002	0.010
1040.5	15	SP	17		1800	1836	1.32	1.07	1.05	1.2	0.85	25.8	11	1.21	1.03	1.9	**28**	0.359	0.969	**0.431**	1.05	0.003	0.017
1040	15.5	SP	17		1860	1865	1.32	1.06	1.05	1.2	0.85	25.4	11	1.21	1.03	1.9	**27**	0.347	0.967	**0.438**	1.00	0.003	0.017
1039.5	16	MH	20	YES	1920	1894	1.32	1.04	1.05	1.2	0.85	29.5	35	5.00	1.20	10.9	**40**		0.966	**0.445**	2.00		
1039	16.5	MH	20	YES	1980	1923	1.32	1.03	1.05	1.2	0.85	29.1	35	5.00	1.20	10.8	**40**		0.965	**0.451**	2.00		
1038.5	17	MH	20	YES	2040	1952	1.32	1.02	1.05	1.2	0.85	28.7	35	5.00	1.20	10.7	**39**		0.964	**0.458**	2.00		
1038	17.5	MH	20	YES	2100	1981	1.32	1.00	1.05	1.2	0.85	28.4	35	5.00	1.20	10.7	**39**		0.963	**0.464**	2.00		
1037.5	18	MH	20	YES	2160	2010	1.32	0.99	1.05	1.2	0.85	28.0	35	5.00	1.20	10.6	**39**		0.962	**0.469**	2.00		
1037	18.5	MH	20	YES	2220	2039	1.32	0.98	1.05	1.2	0.85	27.7	35	5.00	1.20	10.5	**38**		0.961	**0.475**	2.00		
1036.5	19	MH	20	YES	2280	2068	1.32	0.97	1.05	1.2	0.85	27.3	35	5.00	1.20	10.5	**38**		0.959	**0.480**	2.00		
1036	19.5	SP	36		2340	2097	1.32	0.95	1.05	1.2	0.85	48.6	13	1.89	1.04	3.7	**52**		0.958	**0.486**	2.00		
1035.5	20	SP	36		2400	2126	1.32	0.94	1.05	1.2	0.95	53.6	13	1.89	1.04	3.9	**57**		0.957	**0.491**	2.00		
1035	20.5	SP	36		2460	2155	1.32	0.93	1.05	1.2	0.95	53.0	13	1.89	1.04	3.8	**57**		0.956	**0.495**	2.00		
1034.5	21	SP	36		2520	2184	1.32	0.92	1.05	1.2	0.95	52.3	13	1.89	1.04	3.8	**56**		0.954	**0.500**	2.00		
1034	21.5	SP	36		2580	2213	1.32	0.91	1.05	1.2	0.95	51.7	13	1.89	1.04	3.8	**56**		0.953	**0.504**	2.00		
1033.5	22	SP	36		2640	2242	1.32	0.90	1.05	1.2	0.95	51.1	13	1.89	1.04	3.8	**55**		0.951	**0.509**	2.00		
1033	22.5	SP	36		2700	2271	1.32	0.89	1.05	1.2	0.95	50.5	13	1.89	1.04	3.8	**54**		0.950	**0.513**	2.00		
1032.5	23	SP	34		2760	2300	1.32	0.88	1.05	1.2	0.95	47.2	13	1.89	1.04	3.6	**51**		0.948	**0.517**	2.00		
1032	23.5	SP	34		2820	2329	1.32	0.87	1.05	1.2	0.95	46.7	13	1.89	1.04	3.6	**50**		0.947	**0.521**	2.00		
1031.5	24	SP	34		2880	2358	1.32	0.86	1.05	1.2	0.95	46.1	13	1.89	1.04	3.6	**50**		0.945	**0.524**	2.00		
1031	24.5	SP	34		2940	2387	1.32	0.85	1.05	1.2	0.95	45.6	13	1.89	1.04	3.6	**49**		0.944	**0.528**	2.00		
1030.5	25	SP	34		3000	2416	1.32	0.84	1.05	1.2	0.95	45.1	13	1.89	1.04	3.6	**49**		0.942	**0.531**	2.00		
1030	25.5	SP	53		3060	2445	1.32	0.83	1.05	1.2	0.95	69.6	13	1.89	1.04	4.5	**74**		0.940	**0.534**	2.00		
1029.5	26	SP	53		3120	2474	1.32	0.82	1.05	1.2	0.95	68.9	13	1.89	1.04	4.4	**73**		0.938	**0.537**	2.00		
1029	26.5	ML	53		3180	2503	1.32	0.81	1.05	1.2	0.95	68.2	35	5.00	1.20	18.6	**87**		0.936	**0.540**	2.00		
1028.5	27	SP	56		3240	2532	1.32	0.81	1.05	1.2	0.95	71.3	5	0.00	1.00	0.1	**71**		0.934	**0.543**	2.00		
1028	27.5	SP	56		3300	2561	1.32	0.80	1.05	1.2	0.95	70.5	5	0.00	1.00	0.1	**71**		0.932	**0.545**	2.00		
1027.5	28	SP	56		3329	2590	1.32	0.79	1.05	1.2	0.95	70.2	5	0.00	1.00	0.1	**70**		0.930	**0.548**	2.00		
1027	28.5	SP	56		3358	2619	1.32	0.79	1.05	1.2	0.95	69.8	5	0.00	1.00	0.1	**70**		0.928	**0.550**	2.00		
1026.5	29	SP	56		3387	2648	1.32	0.79	1.05	1.2	0.95	69.5	5	0.00	1.00	0.1	**70**		0.925	**0.552**	2.00		
1026	29.5	SP	56		3416	2677	1.32	0.78	1.05	1.2	0.95	69.2	5	0.00	1.00	0.1	**69**		0.923	**0.554**	2.00		

1025.5	30	SP	56		3445	2706	1.32	0.78	1.05	1.2	0.95	68.8	5	0.00	1.00	0.1	69		0.921	0.556	2.00		
1025	30.5	CL	76	YES	3474	2735	1.32	0.77	1.05	1.2	0.95	93.0	5	0.00	1.00	0.1	93		0.918	0.558	2.00		
1024.5	31	CL	24	YES	3503	2764	1.32	0.77	1.05	1.2	0.95	29.2	5	0.00	1.00	0.0	29	0.423	0.915	0.559	0.96	0.011	0.000
1024	31.5	CL	24	YES	3532	2793	1.32	0.77	1.05	1.2	0.95	29.1	5	0.00	1.00	0.0	29	0.416	0.913	0.561	0.94	0.011	0.000
1023.5	32	CL	24	YES	3561	2822	1.32	0.76	1.05	1.2	0.95	28.9	5	0.00	1.00	0.0	29	0.409	0.910	0.562	0.92	0.011	0.000
1023	32.5	CL	24	YES	3590	2851	1.32	0.76	1.05	1.2	0.95	28.8	5	0.00	1.00	0.0	29	0.403	0.907	0.563	0.90	0.011	0.000
1022.5	33	CL	24	YES	3619	2880	1.32	0.76	1.05	1.2	1	30.2	5	0.00	1.00	0.0	30		0.904	0.564	2.00		
1022	33.5	CL	24	YES	3648	2909	1.32	0.75	1.05	1.2	1	30.0	5	0.00	1.00	0.0	30		0.901	0.565	2.00		
1021.5	34	CL	24	YES	3677	2938	1.32	0.75	1.05	1.2	1	29.9	5	0.00	1.00	0.0	30	0.463	0.897	0.566	1.04	0.003	0.000
1021	34.5	CL	24	YES	3706	2967	1.32	0.75	1.05	1.2	1	29.8	5	0.00	1.00	0.0	30	0.454	0.894	0.566	1.01	0.003	0.000
1020.5	35	CL	24	YES	3735	2996	1.32	0.74	1.05	1.2	1	29.6	5	0.00	1.00	0.0	30	0.445	0.891	0.567	0.99	0.011	0.000
1020	35.5	CL	24	YES	3764	3025	1.32	0.74	1.05	1.2	1	29.5	5	0.00	1.00	0.0	30	0.437	0.887	0.567	0.98	0.011	0.000
1019.5	36	CL	24	YES	3793	3054	1.32	0.74	1.05	1.2	1	29.3	5	0.00	1.00	0.0	29	0.430	0.883	0.567	0.96	0.011	0.000
1019	36.5	CL	24	YES	3822	3083	1.32	0.73	1.05	1.2	1	29.2	5	0.00	1.00	0.0	29	0.423	0.880	0.568	0.94	0.011	0.000
1018.5	37	CL	24	YES	3851	3112	1.32	0.73	1.05	1.2	1	29.1	5	0.00	1.00	0.0	29	0.416	0.876	0.567	0.93	0.011	0.000
1018	37.5	CL	24	YES	3880	3141	1.32	0.73	1.05	1.2	1	28.9	5	0.00	1.00	0.0	29	0.410	0.872	0.567	0.91	0.011	0.000
1017.5	38	SW	50		3909	3170	1.32	0.72	1.05	1.2	1	60.0	5	0.00	1.00	0.1	60		0.868	0.567	2.00		
1017	38.5	SW	50		3938	3199	1.32	0.72	1.05	1.2	1	59.8	5	0.00	1.00	0.1	60		0.864	0.566	2.00		
1016.5	39	SW	50		3967	3228	1.32	0.72	1.05	1.2	1	59.5	5	0.00	1.00	0.1	60		0.860	0.566	2.00		
1016	39.5	SW	50		3996	3257	1.32	0.71	1.05	1.2	1	59.2	5	0.00	1.00	0.1	59		0.855	0.565	2.00		
1015.5	40	SW	50		4025	3286	1.32	0.71	1.05	1.2	1	59.0	5	0.00	1.00	0.1	59		0.851	0.564	2.00		
1015	40.5	SW	50		4054	3315	1.32	0.71	1.05	1.2	1	58.7	5	0.00	1.00	0.1	59		0.847	0.564	2.00		
1014.5	41	SW	50		4083	3344	1.32	0.70	1.05	1.2	1	58.5	5	0.00	1.00	0.1	59		0.842	0.563	2.00		
1014	41.5	SW	50		4112	3373	1.32	0.70	1.05	1.2	1	58.2	5	0.00	1.00	0.1	58		0.837	0.561	2.00		
1013.5	42	SW	50		4141	3402	1.32	0.70	1.05	1.2	1	58.0	5	0.00	1.00	0.1	58		0.833	0.560	2.00		
1013	42.5	SW	50		4170	3431	1.32	0.69	1.05	1.2	1	57.7	5	0.00	1.00	0.1	58		0.828	0.559	2.00		
1012.5	43	SW	50		4199	3460	1.32	0.69	1.05	1.2	1	57.5	5	0.00	1.00	0.1	58		0.823	0.558	2.00		
1012	43.5	SW	50		4228	3489	1.32	0.69	1.05	1.2	1	57.2	5	0.00	1.00	0.1	57		0.818	0.556	2.00		
1011.5	44	SW	50		4257	3518	1.32	0.68	1.05	1.2	1	57.0	5	0.00	1.00	0.1	57		0.814	0.554	2.00		
1011	44.5	SW	50		4286	3547	1.32	0.68	1.05	1.2	1	56.7	5	0.00	1.00	0.1	57		0.809	0.553	2.00		
1010.5	45	SW	50		4315	3576	1.32	0.68	1.05	1.2	1	56.5	5	0.00	1.00	0.1	57		0.804	0.551	2.00		
1010	45.5	SW	50		4344	3605	1.32	0.68	1.05	1.2	1	56.2	5	0.00	1.00	0.1	56		0.799	0.549	2.00		
1009.5	46	SW	50		4373	3634	1.32	0.67	1.05	1.2	1	56.0	5	0.00	1.00	0.1	56		0.794	0.547	2.00		
1009	46.5	SW	50		4402	3663	1.32	0.67	1.05	1.2	1	55.8	5	0.00	1.00	0.1	56		0.788	0.545	2.00		
1008.5	47	SW	50		4431	3692	1.32	0.67	1.05	1.2	1	55.5	5	0.00	1.00	0.1	56		0.783	0.543	2.00		
1008	47.5	SW	50		4460	3721	1.32	0.67	1.05	1.2	1	55.3	5	0.00	1.00	0.1	55		0.778	0.541	2.00		
1007.5	48	SW	50		4489	3750	1.32	0.66	1.05	1.2	1	55.1	5	0.00	1.00	0.1	55		0.773	0.539	2.00		
1007	48.5	SW	50		4518	3779	1.32	0.66	1.05	1.2	1	54.9	5	0.00	1.00	0.1	55		0.768	0.537	2.00		
1006.5	49	SW	50		4547	3808	1.32	0.66	1.05	1.2	1	54.6	5	0.00	1.00	0.1	55		0.763	0.535	2.00		
1006	49.5	SW	50		4576	3837	1.32	0.65	1.05	1.2	1	54.4	5	0.00	1.00	0.1	54		0.758	0.533	2.00		
1005.5	50	SW	50		4605	3866	1.32	0.65	1.05	1.2	1	54.2	5	0.00	1.00	0.1	54		0.753	0.530	2.00		
1005	50.5	SW	50		4634	3895	1.32	0.65	1.05	1.2	1	54.0	5	0.00	1.00	0.1	54		0.748	0.528	2.00		
1004.5	51	SW	50		4663	3924	1.32	0.65	1.05	1.2	1	53.8	5	0.00	1.00	0.1	54		0.743	0.526	2.00		
1004	51.5	SW	50		4692	3953	1.32	0.64	1.05	1.2	1	53.5	5	0.00	1.00	0.1	54		0.738	0.524	2.00		
1003.5	52	SW	50		4721	3982	1.32	0.64	1.05	1.2	1	53.3	5	0.00	1.00	0.1	53		0.733	0.521	2.00		
1003	52.5	SW	50		4750	4011	1.32	0.64	1.05	1.2	1	53.1	5	0.00	1.00	0.1	53		0.728	0.519	2.00		
1002.5	53	SW	50		4779	4040	1.32	0.64	1.05	1.2	1	52.9	5	0.00	1.00	0.1	53		0.723	0.517	2.00		
1002	53.5	SW	50		4808	4069	1.32	0.63	1.05	1.2	1	52.7	5	0.00	1.00	0.1	53		0.718	0.514	2.00		
1001.5	54	SW	50		4837	4098	1.32	0.63	1.05	1.2	1	52.5	5	0.00	1.00	0.1	53		0.713	0.512	2.00		
1001	54.5	SW	50		4866	4127	1.32	0.63	1.05	1.2	1	52.3	5	0.00	1.00	0.1	52		0.708	0.509	2.00		
1000.5	55	SW	50		4895	4156	1.32	0.63	1.05	1.2	1	52.1	5	0.00	1.00	0.1	52		0.703	0.507	2.00		
1000	55.5	ML	48		4924	4185	1.32	0.62	1.05	1.2	1	49.8	35	5.00	1.20	15.0	65		0.699	0.505	2.00		
999.5	56	ML	48		4953	4214	1.32	0.62	1.05	1.2	1	49.6	35	5.00	1.20	14.9	65		0.694	0.503	2.00		
999	56.5	ML	48		4982	4243	1.32	0.62	1.05	1.2	1	49.4	35	5.00	1.20	14.9	64		0.689	0.500	2.00		
998.5	57	ML	48		5011	4272	1.32	0.62	1.05	1.2	1	49.2	35	5.00	1.20	14.8	64		0.685	0.498	2.00		
998	57.5	SP	50		5040	4301	1.32	0.61	1.05	1.2	1	51.1	5	0.00	1.00	0.1	51		0.680	0.496	2.00		
997.5	58	SP	50		5069	4330	1.32	0.61	1.05	1.2	1	50.9	5	0.00	1.00	0.1	51		0.676	0.493	2.00		
997	58.5	SP	50		5098	4359	1.32	0.61	1.05	1.2	1	50.7	5	0.00	1.00	0.1	51		0.672	0.491	2.00		
996.5	59	SP	50		5127	4388	1.32	0.61	1.05	1.2	1	50.5	5	0.00	1.00	0.1	51		0.668	0.489	2.00		
996	59.5	SP	50		5156	4417	1.32	0.60	1.05	1.2	1	50.3	5	0.00	1.00	0.1	50		0.663	0.487	2.00		
995.5	60	SP	50		5185	4446	1.32	0.60	1.05	1.2	1	50.1	5	0.00	1.00	0.1	50		0.659	0.485	2.00		
995	60.5	SP	50		5214	4475	1.32	0.60	1.05	1.2	1	49.9	5	0.00	1.00	0.1	50		0.655	0.483	2.00		
994.5	61	SP	50		5243	4504	1.32	0.60	1.05	1.2	1	49.7	5	0.00	1.00	0.1	50		0.651	0.481	2.00		
						228								0.00	1.00							0.000	
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SPT Liquefaction Spreadsheet

JOB NAME	Prpoosed Temecula Hospital	Boring	GDI-7		
DATE	8/12/2010	*y*	120	pcf	
BY	CJZ	GW level	28	ft	
CHECKED BY		HHGL	13.4	ft	
DATE		GS Elevation	1054		
		LFFE	1057.4		

Magnitue	a max
6.84	0.88

MSF 1.27

Total Settlement 0.00 INCHES

Elevation (MSL)	Depth (feet)	Soil Type	Nfield	Boulanger and Idriss (2006)	σo' (psf) current	σo' (psf) HHGWL	C_E	C_N	C_B	C_S	C_R	$(N_1)_{60}$	Fines Correction			ΔN	$(N_1)_{60}$	CRR 1998 eq.	Rd	CSR	FOS	SETTLEMENT (%)	SETTLEMENT (inches)
					psf	psf	energy	stress	5" diam	w/out liner	rod	interim Corr.	%fines	Alpha	Beta			<N=30					
1053	1	SP-SM	27		120	528	1.32	1.75	1.05	1.2	0.75		10	0.87	1.02				1.000	**0.103**	2.00		
1052.5	1.5	SP-SM	27		180	588	1.32	1.71	1.05	1.2	0.75		10	0.87	1.02				0.998	**0.139**	2.00		
1052	2	SP-SM	27		240	648	1.32	1.68	1.05	1.2	0.75		10	0.87	1.02				0.997	**0.168**	2.00		
1051.5	2.5	SP-SM	27		300	708	1.32	1.64	1.05	1.2	0.75		10	0.87	1.02				0.996	**0.192**	2.00		
1051	3	SP-SM	27		360	768	1.32	1.61	1.05	1.2	0.75		10	0.87	1.02				0.995	**0.212**	2.00		
1050.5	3.5	SP-SM	27		420	828	1.32	1.57	1.05	1.2	0.75		10	0.87	1.02				0.994	**0.229**	2.00		
1050	4	SP-SM	27		480	888	1.32	1.54	1.05	1.2	0.75		10	0.87	1.02				0.993	**0.244**	2.00		
1049.5	4.5	SP-SM	27		540	948	1.32	1.51	1.05	1.2	0.75		10	0.87	1.02				0.991	**0.256**	2.00		
1049	5	SP-SM	27		600	1008	1.32	1.48	1.05	1.2	0.75		10	0.87	1.02				0.990	**0.268**	2.00		
1048.5	5.5	SP-SM	18		660	1068	1.32	1.46	1.05	1.2	0.75		10	0.87	1.02				0.989	**0.278**	2.00		
1048	6	SP-SM	18		720	1128	1.32	1.43	1.05	1.2	0.75		10	0.87	1.02				0.988	**0.286**	2.00		
1047.5	6.5	SP-SM	18		780	1188	1.32	1.40	1.05	1.2	0.75		10	0.87	1.02				0.987	**0.294**	2.00		
1047	7	SP-SM	18		840	1248	1.32	1.38	1.05	1.2	0.75		10	0.87	1.02				0.986	**0.301**	2.00		
1046.5	7.5	SP-SM	18		900	1308	1.32	1.35	1.05	1.2	0.75		10	0.87	1.02				0.985	**0.308**	2.00		
1046	8	SP-SM	20		960	1368	1.32	1.33	1.05	1.2	0.75		10	0.87	1.02				0.983	**0.313**	2.00		
1045.5	8.5	SP-SM	20		1020	1428	1.32	1.31	1.05	1.2	0.75		10	0.87	1.02				0.982	**0.319**	2.00		
1045	9	SP-SM	20		1080	1488	1.32	1.29	1.05	1.2	0.75		10	0.87	1.02				0.981	**0.323**	2.00		
1044.5	9.5	SP-SM	20		1140	1548	1.32	1.27	1.05	1.2	0.75		10	0.87	1.02				0.980	**0.328**	2.00		
1044	10	SP-SM	20		1200	1608	1.32	1.24	1.05	1.2	0.75		10	0.87	1.02				0.979	**0.332**	2.00		
1043.5	10.5	SM	16		1260	1668	1.32	1.23	1.05	1.2	0.75		36	5.00	1.20				0.978	**0.335**	2.00		
1043	11	SM	16		1320	1728	1.32	1.21	1.05	1.2	0.75		36	5.00	1.20				0.977	**0.339**	2.00		
1042.5	11.5	SM	16		1380	1788	1.32	1.19	1.05	1.2	0.75		36	5.00	1.20				0.976	**0.342**	2.00		
1042	12	SM	16		1440	1848	1.32	1.17	1.05	1.2	0.75		36	5.00	1.20				0.975	**0.345**	2.00		
1041.5	12.5	SM	16		1500	1908	1.32	1.15	1.05	1.2	0.75		36	5.00	1.20				0.974	**0.348**	2.00		
1041	13	SM	31		1560	1968	1.32	1.14	1.05	1.2	0.85		21	3.78	1.09				0.973	**0.350**	2.00		
1040.5	13.5	SM	31		1620	2022	1.32	1.12	1.05	1.2	0.85	49.1	21	3.78	1.09	8.0	**57**		0.972	**0.354**	2.00		
1040	14	SM	31		1680	2051	1.32	1.10	1.05	1.2	0.85	48.4	21	3.78	1.09	7.9	**56**		0.971	**0.361**	2.00		
1039.5	14.5	SM	31		1740	2080	1.32	1.09	1.05	1.2	0.85	47.7	21	3.78	1.09	7.9	**56**		0.970	**0.368**	2.00		
1039	15	ML	16	YES	1800	2109	1.32	1.07	1.05	1.2	0.85	24.3	35	5.00	1.20	9.9	**34**		0.969	**0.375**	2.00		
1038.5	15.5	ML	16	YES	1860	2138	1.32	1.06	1.05	1.2	0.85	23.9	35	5.00	1.20	9.8	**34**		0.967	**0.382**	2.00		
1038	16	ML	16	YES	1920	2167	1.32	1.04	1.05	1.2	0.85	23.6	35	5.00	1.20	9.7	**33**		0.966	**0.389**	2.00		
1037.5	16.5	ML	16	YES	1980	2196	1.32	1.03	1.05	1.2	0.85	23.3	35	5.00	1.20	9.7	**33**		0.965	**0.395**	2.00		
1037	17	ML	16	YES	2040	2225	1.32	1.02	1.05	1.2	0.85	23.0	35	5.00	1.20	9.6	**33**		0.964	**0.401**	2.00		
1036.5	17.5	SM	19		2100	2254	1.32	1.00	1.05	1.2	0.85	27.0	37	5.00	1.20	10.4	**37**		0.963	**0.407**	2.00		
1036	18	SM	19		2160	2283	1.32	0.99	1.05	1.2	0.85	26.6	37	5.00	1.20	10.3	**37**		0.962	**0.413**	2.00		
1035.5	18.5	SM	19		2220	2312	1.32	0.98	1.05	1.2	0.85	26.3	37	5.00	1.20	10.3	**37**		0.961	**0.419**	2.00		
1035	19	SM	19		2280	2341	1.32	0.97	1.05	1.2	0.85	25.9	37	5.00	1.20	10.2	**36**		0.959	**0.424**	2.00		
1034.5	19.5	SM	19		2340	2370	1.32	0.95	1.05	1.2	0.85	25.6	37	5.00	1.20	10.1	**36**		0.958	**0.430**	2.00		
1034	20	SP	36		2400	2399	1.32	0.94	1.05	1.2	0.95	53.6	5	0.00	1.00	0.1	**54**		0.957	**0.435**	2.00		
1033.5	20.5	SP	36		2460	2428	1.32	0.93	1.05	1.2	0.95	53.0	5	0.00	1.00	0.1	**53**		0.956	**0.440**	2.00		
1033	21	SP	36		2520	2457	1.32	0.92	1.05	1.2	0.95	52.3	5	0.00	1.00	0.1	**52**		0.954	**0.444**	2.00		
1032.5	21.5	SP	36		2580	2486	1.32	0.91	1.05	1.2	0.95	51.7	5	0.00	1.00	0.1	**52**		0.953	**0.449**	2.00		
1032	22	SP	36		2640	2515	1.32	0.90	1.05	1.2	0.95	51.1	5	0.00	1.00	0.1	**51**		0.951	**0.453**	2.00		
1031.5	22.5	SW	57		2700	2544	1.32	0.89	1.05	1.2	0.95	80.0	5	0.00	1.00	0.1	**80**		0.950	**0.458**	2.00		
1031	23	SW	57		2760	2573	1.32	0.88	1.05	1.2	0.95	79.1	5	0.00	1.00	0.1	**79**		0.948	**0.462**	2.00		
1030.5	23.5	SW	57		2820	2602	1.32	0.87	1.05	1.2	0.95	78.2	5	0.00	1.00	0.1	**78**		0.947	**0.466**	2.00		
1030	24	SW	57		2880	2631	1.32	0.86	1.05	1.2	0.95	77.4	5	0.00	1.00	0.1	**77**		0.945	**0.470**	2.00		
1029.5	24.5	SW	57		2940	2660	1.32	0.85	1.05	1.2	0.95	76.5	5	0.00	1.00	0.1	**77**		0.944	**0.474**	2.00		
1029	25	SP-SM	57		3000	2689	1.32	0.84	1.05	1.2	0.95	75.7	5	0.00	1.00	0.1	**76**		0.942	**0.477**	2.00		
1028.5	25.5	SP-SM	57		3060	2718	1.32	0.83	1.05	1.2	0.95	74.9	5	0.00	1.00	0.1	**75**		0.940	**0.481**	2.00		
1028	26	SP-SM	57		3120	2747	1.32	0.82	1.05	1.2	0.95	74.1	5	0.00	1.00	0.1	**74**		0.938	**0.484**	2.00		
1027.5	26.5	SP-SM	57		3180	2776	1.32	0.81	1.05	1.2	0.95	73.3	5	0.00	1.00	0.1	**73**		0.936	**0.487**	2.00		
1027	27	SP-SM	57		3240	2805	1.32	0.81	1.05	1.2	0.95	72.5	5	0.00	1.00	0.1	**73**		0.934	**0.490**	2.00		
1026.5	27.5	SW-SM	27		3300	2834	1.32	0.80	1.05	1.2	0.95	34.0	6	0.03	1.00	0.2	**34**		0.932	**0.493**	2.00		
1026	28	SW-SM	27		3360	2863	1.32	0.79	1.05	1.2	0.95	33.7	6	0.03	1.00	0.2	**34**		0.930	**0.496**	2.00		
1025.5	28.5	SW-SM	27		3389	2892	1.32	0.79	1.05	1.2	0.95	33.5	6	0.03	1.00	0.2	**34**		0.928	**0.498**	2.00		
1025	29	SW-SM	27		3418	2921	1.32	0.78	1.05	1.2	0.95	33.3	6	0.03	1.00	0.2	**34**		0.925	**0.501**	2.00		
1024.5	29.5	SW-SM	27		3447	2950	1.32	0.78	1.05	1.2	0.95	33.2	6	0.03	1.00	0.2	**33**		0.923	**0.503**	2.00		

1024	30	ML	45		3476	2979	1.32	0.77	1.05	1.2	0.95	55.0	35	5.00	1.20	16.0	71	0.921	**0.505**	2.00		
1023.5	30.5	SW-SM	45		3505	3008	1.32	0.77	1.05	1.2	0.95	54.8	6	0.03	1.00	0.3	55	0.918	**0.507**	2.00		
1023	31	SW-SM	45		3534	3037	1.32	0.77	1.05	1.2	0.95	54.5	6	0.03	1.00	0.3	55	0.915	**0.509**	2.00		
1022.5	31.5	SW-SM	45		3563	3066	1.32	0.76	1.05	1.2	0.95	54.2	6	0.03	1.00	0.3	55	0.913	**0.511**	2.00		
1022	32	SW-SM	45		3592	3095	1.32	0.76	1.05	1.2	0.95	54.0	6	0.03	1.00	0.3	54	0.910	**0.513**	2.00		
1021.5	32.5	ML	59		3621	3124	1.32	0.76	1.05	1.2	0.95	70.4	35	5.00	1.20	19.1	90	0.907	**0.514**	2.00		
1021	33	ML	59		3650	3153	1.32	0.75	1.05	1.2	1	73.8	35	5.00	1.20	19.8	94	0.904	**0.515**	2.00		
1020.5	33.5	ML	59		3679	3182	1.32	0.75	1.05	1.2	1	73.5	35	5.00	1.20	19.7	93	0.901	**0.517**	2.00		
1020	34	ML	59		3708	3211	1.32	0.75	1.05	1.2	1	73.1	35	5.00	1.20	19.6	93	0.897	**0.518**	2.00		
1019.5	34.5	ML	59		3737	3240	1.32	0.74	1.05	1.2	1	72.8	35	5.00	1.20	19.6	92	0.894	**0.519**	2.00		
1019	35	SP	50		3766	3269	1.32	0.74	1.05	1.2	1	61.4	5	0.00	1.00	0.1	61	0.891	**0.520**	2.00		
1018.5	35.5	SP	50		3795	3298	1.32	0.73	1.05	1.2	1	61.1	5	0.00	1.00	0.1	61	0.887	**0.520**	2.00		
1018	36	SP	50		3824	3327	1.32	0.73	1.05	1.2	1	60.8	5	0.00	1.00	0.1	61	0.883	**0.521**	2.00		
1017.5	36.5	SP	50		3853	3356	1.32	0.73	1.05	1.2	1	60.6	5	0.00	1.00	0.1	61	0.880	**0.521**	2.00		
1017	37	SP	50		3882	3385	1.32	0.72	1.05	1.2	1	60.3	5	0.00	1.00	0.1	60	0.876	**0.522**	2.00		
1016.5	37.5	SP	50		3911	3414	1.32	0.72	1.05	1.2	1	60.0	5	0.00	1.00	0.1	60	0.872	**0.522**	2.00		
1016	38	SP	50		3940	3443	1.32	0.72	1.05	1.2	1	59.7	5	0.00	1.00	0.1	60	0.868	**0.522**	2.00		
1015.5	38.5	SP	50		3969	3472	1.32	0.72	1.05	1.2	1	59.5	5	0.00	1.00	0.1	60	0.864	**0.522**	2.00		
1015	39	SP	50		3998	3501	1.32	0.71	1.05	1.2	1	59.2	5	0.00	1.00	0.1	59	0.860	**0.522**	2.00		
1014.5	39.5	SP	50		4027	3530	1.32	0.71	1.05	1.2	1	59.0	5	0.00	1.00	0.1	59	0.855	**0.522**	2.00		
1014	40	SP	50		4056	3559	1.32	0.71	1.05	1.2	1	58.7	5	0.00	1.00	0.1	59	0.851	**0.521**	2.00		
1013.5	40.5	SP	50		4085	3588	1.32	0.70	1.05	1.2	1	58.4	5	0.00	1.00	0.1	59	0.847	**0.521**	2.00		
1013	41	SP	50		4114	3617	1.32	0.70	1.05	1.2	1	58.2	5	0.00	1.00	0.1	58	0.842	**0.520**	2.00		
1012.5	41.5	SP	50		4143	3646	1.32	0.70	1.05	1.2	1	57.9	5	0.00	1.00	0.1	58	0.837	**0.519**	2.00		
1012	42	SP	50		4172	3675	1.32	0.69	1.05	1.2	1	57.7	5	0.00	1.00	0.1	58	0.833	**0.519**	2.00		
1011.5	42.5	SP	50		4201	3704	1.32	0.69	1.05	1.2	1	57.4	5	0.00	1.00	0.1	58	0.828	**0.518**	2.00		
1011	43	SP	50		4230	3733	1.32	0.69	1.05	1.2	1	57.2	5	0.00	1.00	0.1	57	0.823	**0.517**	2.00		
1010.5	43.5	SP	50		4259	3762	1.32	0.68	1.05	1.2	1	56.9	5	0.00	1.00	0.1	57	0.818	**0.516**	2.00		
1010	44	SP	50		4288	3791	1.32	0.68	1.05	1.2	1	56.7	5	0.00	1.00	0.1	57	0.814	**0.514**	2.00		
1009.5	44.5	SP	50		4317	3820	1.32	0.68	1.05	1.2	1	56.5	5	0.00	1.00	0.1	57	0.809	**0.513**	2.00		
1009	45	SP	50		4346	3849	1.32	0.68	1.05	1.2	1	56.2	5	0.00	1.00	0.1	56	0.804	**0.512**	2.00		
1008.5	45.5	SP	50		4375	3878	1.32	0.67	1.05	1.2	1	56.0	5	0.00	1.00	0.1	56	0.799	**0.511**	2.00		
1008	46	SP	50		4404	3907	1.32	0.67	1.05	1.2	1	55.8	5	0.00	1.00	0.1	56	0.794	**0.509**	2.00		
1007.5	46.5	SP	50		4433	3936	1.32	0.67	1.05	1.2	1	55.5	5	0.00	1.00	0.1	56	0.788	**0.508**	2.00		
1007	47	SP	50		4462	3965	1.32	0.66	1.05	1.2	1	55.3	5	0.00	1.00	0.1	55	0.783	**0.506**	2.00		
1006.5	47.5	SP	50		4491	3994	1.32	0.66	1.05	1.2	1	55.1	5	0.00	1.00	0.1	55	0.778	**0.504**	2.00		
1006	48	SP	50		4520	4023	1.32	0.66	1.05	1.2	1	54.8	5	0.00	1.00	0.1	55	0.773	**0.503**	2.00		
1005.5	48.5	SP	50		4549	4052	1.32	0.66	1.05	1.2	1	54.6	5	0.00	1.00	0.1	55	0.768	**0.501**	2.00		
1005	49	SP	50		4578	4081	1.32	0.65	1.05	1.2	1	54.4	5	0.00	1.00	0.1	54	0.763	**0.499**	2.00		
1004.5	49.5	SP	50		4607	4110	1.32	0.65	1.05	1.2	1	54.2	5	0.00	1.00	0.1	54	0.758	**0.497**	2.00		
1004	50	SP	50		4636	4139	1.32	0.65	1.05	1.2	1	54.0	5	0.00	1.00	0.1	54	0.753	**0.495**	2.00		
1003.5	50.5	SP	50		4665	4168	1.32	0.65	1.05	1.2	1	53.7	5	0.00	1.00	0.1	54	0.748	**0.494**	2.00		
1003	51	SP	50		4694	4197	1.32	0.64	1.05	1.2	1	53.5	5	0.00	1.00	0.1	54	0.743	**0.492**	2.00		
1002.5	51.5	SP	50		4723	4226	1.32	0.64	1.05	1.2	1	53.3	5	0.00	1.00	0.1	53	0.738	**0.490**	2.00		
1002	52	SP	50		4752	4255	1.32	0.64	1.05	1.2	1	53.1	5	0.00	1.00	0.1	53	0.733	**0.488**	2.00		
1001.5	52.5	SP	50		4781	4284	1.32	0.64	1.05	1.2	1	52.9	5	0.00	1.00	0.1	53	0.728	**0.486**	2.00		
1001	53	SP	50		4810	4313	1.32	0.63	1.05	1.2	1	52.7	5	0.00	1.00	0.1	53	0.723	**0.484**	2.00		
1000.5	53.5	SP	50		4839	4342	1.32	0.63	1.05	1.2	1	52.5	5	0.00	1.00	0.1	53	0.718	**0.482**	2.00		
1000	54	SP	50		4868	4371	1.32	0.63	1.05	1.2	1	52.3	5	0.00	1.00	0.1	52	0.713	**0.480**	2.00		
999.5	54.5	SP	50		4897	4400	1.32	0.63	1.05	1.2	1	52.1	5	0.00	1.00	0.1	52	0.708	**0.478**	2.00		
999	55	SP	50		4926	4429	1.32	0.62	1.05	1.2	1	51.9	5	0.00	1.00	0.1	52	0.703	**0.476**	2.00		
998.5	55.5	SP	50		4955	4458	1.32	0.62	1.05	1.2	1	51.7	35	5.00	1.20	15.3	67	0.699	**0.474**	2.00		
998	56	SP	50		4984	4487	1.32	0.62	1.05	1.2	1	51.5	35	5.00	1.20	15.3	67	0.694	**0.472**	2.00		
997.5	56.5	SP	50		5013	4516	1.32	0.62	1.05	1.2	1	51.3	35	5.00	1.20	15.3	67	0.689	**0.470**	2.00		
997	57	SP	50		5042	4545	1.32	0.61	1.05	1.2	1	51.1	35	5.00	1.20	15.2	66	0.685	**0.468**	2.00		
996.5	57.5	SP	50		5071	4574	1.32	0.61	1.05	1.2	1	50.9	5	0.00	1.00	0.1	51	0.680	**0.466**	2.00		
996	58	SP	50		5100	4603	1.32	0.61	1.05	1.2	1	50.7	5	0.00	1.00	0.1	51	0.676	**0.464**	2.00		
995.5	58.5	SP	50		5129	4632	1.32	0.61	1.05	1.2	1	50.5	5	0.00	1.00	0.1	51	0.672	**0.462**	2.00		
995	59	SP	50		5158	4661	1.32	0.60	1.05	1.2	1	50.3	5	0.00	1.00	0.1	50	0.668	**0.460**	2.00		
994.5	59.5	SP	50		5187	4690	1.32	0.60	1.05	1.2	1	50.1	5	0.00	1.00	0.1	50	0.663	**0.459**	2.00		
994	60	SP	50		5216	4719	1.32	0.60	1.05	1.2	1	49.9	5	0.00	1.00	0.1	50	0.659	**0.457**	2.00		
993.5	60.5	SP	50		5245	4748	1.32	0.60	1.05	1.2	1	49.7	5	0.00	1.00	0.1	50	0.655	**0.455**	2.00		
993	61	SP	50		5274	4777	1.32	0.60	1.05	1.2	1	49.5	5	0.00	1.00	0.1	50	0.651	**0.453**	2.00		
						408								0.00	1.00						0.000	
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SPT Liquefaction Spreadsheet

JOB NAME	Prpoosed Temecula Hospital	Boring	GDI-8		
DATE	8/11/2010	*y*	120	pcf	
BY	CJZ	GW level	23.5	ft	
CHECKED BY		HHGL	15.9	ft	
DATE		GS Elevation	1051.5		
		LFFE	1057.4		

Magnitue	a max
6.84	0.88

MSF 1.27

Total Settlement 1.18 INCHES

Elevation (MSL)	Depth (feet)	Soil Type	Nfield	Boulanger and Idriss (2006)	σo' (psf) current	σo' (psf) HHGWL	C_E	C_N	C_B	C_S	C_R	$(N_1)_{60}$	Fines Correction			ΔN	$(N_1)_{60}$	CRR	Rd	CSR	FOS	SETTLEMENT (%)	SETTLEMENT (inches)
					psf	psf	energy	stress	5" diam	w/out liner	rod	interim Corr.	%fines	Alpha	Beta			1998 eq. <N=30					
1050.5	1	SP-SM	15		120	828	1.32	1.75	1.05	1.2	0.75		10	0.87	1.02				1.000	**0.066**	2.00		
1050	1.5	SP-SM	15		180	888	1.32	1.71	1.05	1.2	0.75		10	0.87	1.02				0.998	**0.092**	2.00		
1049.5	2	SP-SM	15		240	948	1.32	1.68	1.05	1.2	0.75		10	0.87	1.02				0.997	**0.115**	2.00		
1049	2.5	SP-SM	15		300	1008	1.32	1.64	1.05	1.2	0.75		10	0.87	1.02				0.996	**0.135**	2.00		
1048.5	3	SP-SM	15		360	1068	1.32	1.61	1.05	1.2	0.75		10	0.87	1.02				0.995	**0.152**	2.00		
1048	3.5	SP-SM	15		420	1128	1.32	1.57	1.05	1.2	0.75		10	0.87	1.02				0.994	**0.168**	2.00		
1047.5	4	SP-SM	15		480	1188	1.32	1.54	1.05	1.2	0.75		10	0.87	1.02				0.993	**0.182**	2.00		
1047	4.5	SP-SM	15		540	1248	1.32	1.51	1.05	1.2	0.75		10	0.87	1.02				0.991	**0.195**	2.00		
1046.5	5	SP-SM	15		600	1308	1.32	1.48	1.05	1.2	0.75		10	0.87	1.02				0.990	**0.206**	2.00		
1046	5.5	SP-SM	15		660	1368	1.32	1.46	1.05	1.2	0.75		10	0.87	1.02				0.989	**0.217**	2.00		
1045.5	6	SP-SM	15		720	1428	1.32	1.43	1.05	1.2	0.75		10	0.87	1.02				0.988	**0.226**	2.00		
1045	6.5	SP-SM	15		780	1488	1.32	1.40	1.05	1.2	0.75		3	0.00	1.00				0.987	**0.235**	2.00		
1044.5	7	SP	15		840	1548	1.32	1.38	1.05	1.2	0.75		3	0.00	1.00				0.986	**0.243**	2.00		
1044	7.5	SP	18		900	1608	1.32	1.35	1.05	1.2	0.75		3	0.00	1.00				0.985	**0.250**	2.00		
1043.5	8	SP	18		960	1668	1.32	1.33	1.05	1.2	0.75		3	0.00	1.00				0.983	**0.257**	2.00		
1043	8.5	SP	18		1020	1728	1.32	1.31	1.05	1.2	0.75		3	0.00	1.00				0.982	**0.263**	2.00		
1042.5	9	SP	18		1080	1788	1.32	1.29	1.05	1.2	0.75		3	0.00	1.00				0.981	**0.269**	2.00		
1042	9.5	SP	18		1140	1848	1.32	1.27	1.05	1.2	0.75		3	0.00	1.00				0.980	**0.275**	2.00		
1041.5	10	SP	18		1200	1908	1.32	1.24	1.05	1.2	0.75		3	0.00	1.00				0.979	**0.280**	2.00		
1041	10.5	ML	16		1260	1968	1.32	1.23	1.05	1.2	0.75		35	5.00	1.20				0.978	**0.284**	2.00		
1040.5	11	SM	16		1320	2028	1.32	1.21	1.05	1.2	0.75		23	4.08	1.10				0.977	**0.289**	2.00		
1040	11.5	SM	16		1380	2088	1.32	1.19	1.05	1.2	0.75		23	4.06	1.10				0.976	**0.293**	2.00		
1039.5	12	SM	16		1440	2148	1.32	1.17	1.05	1.2	0.75		23	4.06	1.10				0.975	**0.297**	2.00		
1039	12.5	SM	16		1500	2208	1.32	1.15	1.05	1.2	0.75		23	4.06	1.10				0.974	**0.300**	2.00		
1038.5	13	SM	16		1560	2268	1.32	1.14	1.05	1.2	0.85		23	4.06	1.10				0.973	**0.304**	2.00		
1038	13.5	SM	16		1620	2328	1.32	1.12	1.05	1.2	0.85		23	4.06	1.10				0.972	**0.307**	2.00		
1037.5	14	SM	16		1680	2388	1.32	1.10	1.05	1.2	0.85		23	4.06	1.10				0.971	**0.310**	2.00		
1037	14.5	SM	16		1740	2448	1.32	1.09	1.05	1.2	0.85		23	4.06	1.10				0.970	**0.313**	2.00		
1036.5	15	SM	16		1800	2508	1.32	1.07	1.05	1.2	0.85		23	4.06	1.10				0.969	**0.316**	2.00		
1036	15.5	SM	16		1860	2568	1.32	1.06	1.05	1.2	0.85		23	4.06	1.10				0.967	**0.318**	2.00		
1035.5	16	SM	16		1920	2622	1.32	1.04	1.05	1.2	0.85	23.6	23	4.06	1.10	6.4	**30**		0.966	**0.321**	2.00		
1035	16.5	SM	16		1980	2651	1.32	1.03	1.05	1.2	0.85	23.3	23	4.06	1.10	6.4	**30**	0.448	0.965	**0.327**	1.73	0.000	0.000
1034.5	17	ML	16		2040	2680	1.32	1.02	1.05	1.2	0.85	23.0	35	5.00	1.20	9.6	**33**		0.964	**0.333**	2.00		
1034	17.5	ML	16		2100	2709	1.32	1.00	1.05	1.2	0.85	22.7	35	5.00	1.20	9.5	**32**		0.963	**0.339**	2.00		
1033.5	18	ML	16		2160	2738	1.32	0.99	1.05	1.2	0.85	22.4	35	5.00	1.20	9.5	**32**		0.962	**0.345**	2.00		
1033	18.5	ML	16		2220	2767	1.32	0.98	1.05	1.2	0.85	22.1	35	5.00	1.20	9.4	**32**		0.961	**0.350**	2.00		
1032.5	19	ML	16		2280	2796	1.32	0.97	1.05	1.2	0.85	21.8	35	5.00	1.20	9.4	**31**		0.959	**0.355**	2.00		
1032	19.5	SP	30		2340	2825	1.32	0.95	1.05	1.2	0.85	40.5	5	0.00	1.00	0.1	**41**		0.958	**0.360**	2.00		
1031.5	20	SP	30		2400	2854	1.32	0.94	1.05	1.2	0.95	44.7	5	0.00	1.00	0.1	**45**		0.957	**0.365**	2.00		
1031	20.5	SP	30		2460	2883	1.32	0.93	1.05	1.2	0.95	44.1	5	0.00	1.00	0.1	**44**		0.956	**0.370**	2.00		
1030.5	21	SP	30		2520	2912	1.32	0.92	1.05	1.2	0.95	43.6	5	0.00	1.00	0.1	**44**		0.954	**0.375**	2.00		
1030	21.5	SP	30		2580	2941	1.32	0.91	1.05	1.2	0.95	43.1	5	0.00	1.00	0.1	**43**		0.953	**0.380**	2.00		
1029.5	22	SP	30		2640	2970	1.32	0.90	1.05	1.2	0.95	42.6	5	0.00	1.00	0.1	**43**		0.951	**0.384**	2.00		
1029	22.5	SP	30		2700	2999	1.32	0.89	1.05	1.2	0.95	42.1	5	0.00	1.00	0.1	**42**		0.950	**0.388**	2.00		
1028.5	23	SP	30		2760	3028	1.32	0.88	1.05	1.2	0.95	41.6	5	0.00	1.00	0.1	**42**		0.948	**0.393**	2.00		
1028	23.5	SP	30		2820	3057	1.32	0.87	1.05	1.2	0.95	41.2	5	0.00	1.00	0.1	**41**		0.947	**0.397**	2.00		
1027.5	24	ML	11		2849	3086	1.32	0.86	1.05	1.2	0.95	15.0	35	5.00	1.20	8.0	**23**	0.257	0.945	**0.401**	0.81	0.014	0.084
1027	24.5	ML	11		2878	3115	1.32	0.86	1.05	1.2	0.95	14.9	35	5.00	1.20	8.0	**23**	0.256	0.944	**0.404**	0.80	0.014	0.084
1026.5	25	ML	11		2907	3144	1.32	0.85	1.05	1.2	0.95	14.9	35	5.00	1.20	8.0	**23**	0.254	0.942	**0.408**	0.79	0.014	0.084
1026	25.5	ML	11		2936	3173	1.32	0.85	1.05	1.2	0.95	14.8	35	5.00	1.20	8.0	**23**	0.253	0.940	**0.412**	0.78	0.014	0.084
1025.5	26	ML	11		2965	3202	1.32	0.85	1.05	1.2	0.95	14.7	35	5.00	1.20	7.9	**23**	0.251	0.938	**0.415**	0.77	0.014	0.084
1025	26.5	ML	11		2994	3231	1.32	0.84	1.05	1.2	0.95	14.6	35	5.00	1.20	7.9	**23**	0.250	0.936	**0.418**	0.76	0.014	0.084
1024.5	27	ML	11		3023	3260	1.32	0.84	1.05	1.2	0.95	14.5	35	5.00	1.20	7.9	**22**	0.249	0.934	**0.422**	0.75	0.014	0.084
1024	27.5	ML	11		3052	3289	1.32	0.83	1.05	1.2	0.95	14.5	35	5.00	1.20	7.9	**22**	0.247	0.932	**0.425**	0.74	0.014	0.084
1023.5	28	ML	11		3081	3318	1.32	0.83	1.05	1.2	0.95	14.4	35	5.00	1.20	7.9	**22**	0.246	0.930	**0.428**	0.73	0.014	0.084
1023	28.5	ML	11		3110	3347	1.32	0.82	1.05	1.2	0.95	14.3	35	5.00	1.20	7.9	**22**	0.245	0.928	**0.430**	0.72	0.014	0.084
1022.5	29	ML	11		3139	3376	1.32	0.82	1.05	1.2	0.95	14.2	35	5.00	1.20	7.8	**22**	0.243	0.925	**0.433**	0.71	0.014	0.084
1022	29.5	ML	11		3168	3405	1.32	0.82	1.05	1.2	0.95	14.2	35	5.00	1.20	7.8	**22**	0.242	0.923	**0.436**	0.70	0.014	0.084

1021.5	30	ML	11		3197	3434	1.32	0.81	1.05	1.2	0.95	14.1	35	5.00	1.20	7.8	22	0.241	0.921	0.438	0.70	0.014	0.084
1021	30.5	ML	11		3226	3463	1.32	0.81	1.05	1.2	0.95	14.0	35	5.00	1.20	7.8	22	0.240	0.918	0.441	0.69	0.014	0.084
1020.5	31	SP	44		3255	3492	1.32	0.80	1.05	1.2	0.95	55.9	35	5.00	1.20	16.2	72		0.915	0.443	2.00		
1020	31.5	SP	44		3284	3521	1.32	0.80	1.05	1.2	0.95	55.6	5	0.00	1.00	0.1	56		0.913	0.445	2.00		
1019.5	32	SP	44		3313	3550	1.32	0.80	1.05	1.2	0.95	55.3	5	0.00	1.00	0.1	55		0.910	0.447	2.00		
1019	32.5	SP	44		3342	3579	1.32	0.79	1.05	1.2	0.95	55.0	5	0.00	1.00	0.1	55		0.907	0.449	2.00		
1018.5	33	SP	44		3371	3608	1.32	0.79	1.05	1.2	1	57.6	5	0.00	1.00	0.1	58		0.904	0.450	2.00		
1018	33.5	SP	44		3400	3637	1.32	0.78	1.05	1.2	1	57.4	5	0.00	1.00	0.1	57		0.901	0.452	2.00		
1017.5	34	SP	44		3429	3666	1.32	0.78	1.05	1.2	1	57.1	5	0.00	1.00	0.1	57		0.897	0.453	2.00		
1017	34.5	CL	28	YES	3458	3695	1.32	0.78	1.05	1.2	1	36.1	32	4.83	1.17	11.0	47		0.894	0.455	2.00		
1016.5	35	CL	28	YES	3487	3724	1.32	0.77	1.05	1.2	1	36.0	32	4.83	1.17	11.0	47		0.891	0.456	2.00		
1016	35.5	CL	28	YES	3516	3753	1.32	0.77	1.05	1.2	1	35.8	32	4.83	1.17	11.0	47		0.887	0.457	2.00		
1015.5	36	CL	28	YES	3545	3782	1.32	0.77	1.05	1.2	1	35.6	32	4.83	1.17	10.9	47		0.883	0.458	2.00		
1015	36.5	SW	28		3574	3811	1.32	0.76	1.05	1.2	1	35.5	5	0.00	1.00	0.0	36		0.880	0.459	2.00		
1014.5	37	SW	28		3603	3840	1.32	0.76	1.05	1.2	1	35.3	5	0.00	1.00	0.0	35		0.876	0.460	2.00		
1014	37.5	SW	28		3632	3869	1.32	0.75	1.05	1.2	1	35.1	5	0.00	1.00	0.0	35		0.872	0.461	2.00		
1013.5	38	SW	28		3661	3898	1.32	0.75	1.05	1.2	1	35.0	5	0.00	1.00	0.0	35		0.868	0.461	2.00		
1013	38.5	SW	28		3690	3927	1.32	0.75	1.05	1.2	1	34.8	5	0.00	1.00	0.0	35		0.864	0.461	2.00		
1012.5	39	ML	28		3719	3956	1.32	0.74	1.05	1.2	1	34.6	35	5.00	1.20	11.9	47		0.860	0.462	2.00		
1012	39.5	ML	28		3748	3985	1.32	0.74	1.05	1.2	1	34.5	35	5.00	1.20	11.9	46		0.855	0.462	2.00		
1011.5	40	ML	28		3777	4014	1.32	0.74	1.05	1.2	1	34.3	35	5.00	1.20	11.9	46		0.851	0.462	2.00		
1011	40.5	ML	28		3806	4043	1.32	0.73	1.05	1.2	1	34.2	35	5.00	1.20	11.8	46		0.847	0.462	2.00		
1010.5	41	SW	48		3835	4072	1.32	0.73	1.05	1.2	1	58.3	5	0.00	1.00	0.1	58		0.842	0.462	2.00		
1010	41.5	SW	48		3864	4101	1.32	0.73	1.05	1.2	1	58.0	5	0.00	1.00	0.1	58		0.837	0.462	2.00		
1009.5	42	SW	48		3893	4130	1.32	0.72	1.05	1.2	1	57.8	5	0.00	1.00	0.1	58		0.833	0.461	2.00		
1009	42.5	SW	48		3922	4159	1.32	0.72	1.05	1.2	1	57.5	5	0.00	1.00	0.1	58		0.828	0.461	2.00		
1008.5	43	SW	48		3951	4188	1.32	0.72	1.05	1.2	1	57.3	5	0.00	1.00	0.1	57		0.823	0.461	2.00		
1008	43.5	SW	48		3980	4217	1.32	0.71	1.05	1.2	1	57.0	5	0.00	1.00	0.1	57		0.818	0.460	2.00		
1007.5	44	SW	48		4009	4246	1.32	0.71	1.05	1.2	1	56.8	5	0.00	1.00	0.1	57		0.814	0.459	2.00		
1007	44.5	SW	48		4038	4275	1.32	0.71	1.05	1.2	1	56.5	5	0.00	1.00	0.1	57		0.809	0.459	2.00		
1006.5	45	SW	48		4067	4304	1.32	0.70	1.05	1.2	1	56.3	5	0.00	1.00	0.1	56		0.804	0.458	2.00		
1006	45.5	SW	48		4096	4333	1.32	0.70	1.05	1.2	1	56.0	5	0.00	1.00	0.1	56		0.799	0.457	2.00		
1005.5	46	SW	48		4125	4362	1.32	0.70	1.05	1.2	1	55.8	5	0.00	1.00	0.1	56		0.794	0.456	2.00		
1005	46.5	SW	48		4154	4391	1.32	0.70	1.05	1.2	1	55.5	5	0.00	1.00	0.1	56		0.788	0.455	2.00		
1004.5	47	SW	48		4183	4420	1.32	0.69	1.05	1.2	1	55.3	5	0.00	1.00	0.1	55		0.783	0.454	2.00		
1004	47.5	SW	48		4212	4449	1.32	0.69	1.05	1.2	1	55.0	5	0.00	1.00	0.1	55		0.778	0.453	2.00		
1003.5	48	SW	48		4241	4478	1.32	0.69	1.05	1.2	1	54.8	5	0.00	1.00	0.1	55		0.773	0.452	2.00		
1003	48.5	SW	48		4270	4507	1.32	0.68	1.05	1.2	1	54.6	5	0.00	1.00	0.1	55		0.768	0.450	2.00		
1002.5	49	SW	48		4299	4536	1.32	0.68	1.05	1.2	1	54.3	5	0.00	1.00	0.1	54		0.763	0.449	2.00		
1002	49.5	SW	48		4328	4565	1.32	0.68	1.05	1.2	1	54.1	5	0.00	1.00	0.1	54		0.758	0.448	2.00		
1001.5	50	SW	48		4357	4594	1.32	0.68	1.05	1.2	1	53.9	5	0.00	1.00	0.1	54		0.753	0.446	2.00		
1001	50.5	SW	48		4386	4623	1.32	0.67	1.05	1.2	1	53.7	5	0.00	1.00	0.1	54		0.748	0.445	2.00		
1000.5	51	SW	48		4415	4652	1.32	0.67	1.05	1.2	1	53.4	5	0.00	1.00	0.1	54		0.743	0.444	2.00		
1000	51.5	SW	48		4444	4681	1.32	0.67	1.05	1.2	1	53.2	5	0.00	1.00	0.1	53		0.738	0.442	2.00		
999.5	52	SW	48		4473	4710	1.32	0.66	1.05	1.2	1	53.0	5	0.00	1.00	0.1	53		0.733	0.441	2.00		
999	52.5	SW	48		4502	4739	1.32	0.66	1.05	1.2	1	52.8	5	0.00	1.00	0.1	53		0.728	0.439	2.00		
998.5	53	SW	48		4531	4768	1.32	0.66	1.05	1.2	1	52.6	5	0.00	1.00	0.1	53		0.723	0.438	2.00		
998	53.5	SW	48		4560	4797	1.32	0.66	1.05	1.2	1	52.3	5	0.00	1.00	0.1	52		0.718	0.436	2.00		
997.5	54	SW	48		4589	4826	1.32	0.65	1.05	1.2	1	52.1	5	0.00	1.00	0.1	52		0.713	0.435	2.00		
997	54.5	SW	48		4618	4855	1.32	0.65	1.05	1.2	1	51.9	5	0.00	1.00	0.1	52		0.708	0.433	2.00		
996.5	55	SW	48		4647	4884	1.32	0.65	1.05	1.2	1	51.7	5	0.00	1.00	0.1	52		0.703	0.432	2.00		
996	55.5	SW	48		4676	4913	1.32	0.65	1.05	1.2	1	51.5	35	5.00	1.20	15.3	67		0.699	0.430	2.00		
995.5	56	SW	48		4705	4942	1.32	0.64	1.05	1.2	1	51.3	35	5.00	1.20	15.3	67		0.694	0.428	2.00		
995	56.5	SW	48		4734	4971	1.32	0.64	1.05	1.2	1	51.1	35	5.00	1.20	15.2	66		0.689	0.427	2.00		
994.5	57	SW	48		4763	5000	1.32	0.64	1.05	1.2	1	50.9	35	5.00	1.20	15.2	66		0.685	0.425	2.00		
994	57.5	SW	48		4792	5029	1.32	0.63	1.05	1.2	1	50.7	5	0.00	1.00	0.1	51		0.680	0.424	2.00		
993.5	58	SW	48		4821	5058	1.32	0.63	1.05	1.2	1	50.5	5	0.00	1.00	0.1	51		0.676	0.422	2.00		
993	58.5	SW	48		4850	5087	1.32	0.63	1.05	1.2	1	50.3	5	0.00	1.00	0.1	50		0.672	0.421	2.00		
992.5	59	SW	48		4879	5116	1.32	0.63	1.05	1.2	1	50.1	5	0.00	1.00	0.1	50		0.668	0.419	2.00		
992	59.5	SW	48		4908	5145	1.32	0.63	1.05	1.2	1	49.9	5	0.00	1.00	0.1	50		0.663	0.418	2.00		
991.5	60	SW	48		4937	5174	1.32	0.62	1.05	1.2	1	49.7	5	0.00	1.00	0.1	50		0.659	0.417	2.00		
991	60.5	SW	48		4966	5203	1.32	0.62	1.05	1.2	1	49.5	5	0.00	1.00	0.1	50		0.655	0.415	2.00		
990.5	61	SW	48		4995	5232	1.32	0.62	1.05	1.2	1	49.3	5	0.00	1.00	0.1	49		0.651	0.414	2.00		
						708								0.00	1.00							0.000	
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																						0.000	0.000
																							1.176

SPT Liquefaction Spreadsheet

JOB NAME	Prpoosed Temecula Hospital	Boring	GDI-9		
DATE	8/11/2010	*y*	120	pcf	
BY	CJZ	GW level	23	ft	
CHECKED BY		HHGL	17.9	ft	
DATE		GS Elevation	1049.5		
		LFFE	1057.4		
			Magnitue	a max	
			6.84	0.88	
		MSF	1.27		

Total Settlement 0.53 INCHES

Elevation (MSL)	Depth (feet)	Soil Type	Nfield	Boulanger and Idriss (2006)	σo' (psf) current	σo' (psf) HHGWL	C_E	C_N	C_B	C_S	C_R	$(N_1)_{60}$	Fines Correction			ΔN	$(N_1)_{60}$	CRR 1998 eq.	Rd	CSR	FOS	SETTLEMENT (%)	SETTLEMENT (inches)
					psf	psf	energy	stress	5" diam	w/out liner	rod	interim Corr.	%fines	Alpha	Beta			<N=30					
1048.5	1	ML	16		120	1068	1.32	1.75	1.05	1.2	0.75		35	5.00	1.20				1.000	**0.051**	2.00		
1048	1.5	ML	16		180	1128	1.32	1.71	1.05	1.2	0.75		35	5.00	1.20				0.998	**0.072**	2.00		
1047.5	2	ML	16		240	1188	1.32	1.68	1.05	1.2	0.75		35	5.00	1.20				0.997	**0.091**	2.00		
1047	2.5	ML	16		300	1248	1.32	1.64	1.05	1.2	0.75		35	5.00	1.20				0.996	**0.109**	2.00		
1046.5	3	ML	16		360	1308	1.32	1.61	1.05	1.2	0.75		35	5.00	1.20				0.995	**0.124**	2.00		
1046	3.5	ML	16		420	1368	1.32	1.57	1.05	1.2	0.75		35	5.00	1.20				0.994	**0.139**	2.00		
1045.5	4	ML	16		480	1428	1.32	1.54	1.05	1.2	0.75		35	5.00	1.20				0.993	**0.151**	2.00		
1045	4.5	SP-SM	12		540	1488	1.32	1.51	1.05	1.2	0.75		10	0.87	1.02				0.991	**0.163**	2.00		
1044.5	5	SP-SM	12		600	1548	1.32	1.48	1.05	1.2	0.75		10	0.87	1.02				0.990	**0.174**	2.00		
1044	5.5	SP-SM	12		660	1608	1.32	1.46	1.05	1.2	0.75		10	0.87	1.02				0.989	**0.184**	2.00		
1043.5	6	SP-SM	12		720	1668	1.32	1.43	1.05	1.2	0.75		10	0.87	1.02				0.988	**0.194**	2.00		
1043	6.5	SP-SM	12		780	1728	1.32	1.40	1.05	1.2	0.75		10	0.87	1.02				0.987	**0.202**	2.00		
1042.5	7	SP-SM	12		840	1788	1.32	1.38	1.05	1.2	0.75		4	0.00	1.00				0.986	**0.210**	2.00		
1042	7.5	SP	12		900	1848	1.32	1.35	1.05	1.2	0.75		4	0.00	1.00				0.985	**0.218**	2.00		
1041.5	8	SP	12		960	1908	1.32	1.33	1.05	1.2	0.75		4	0.00	1.00				0.983	**0.225**	2.00		
1041	8.5	SP	12		1020	1968	1.32	1.31	1.05	1.2	0.75		4	0.00	1.00				0.982	**0.231**	2.00		
1040.5	9	SP	12		1080	2028	1.32	1.29	1.05	1.2	0.75		4	0.00	1.00				0.981	**0.237**	2.00		
1040	9.5	SP	12		1140	2088	1.32	1.27	1.05	1.2	0.75		4	0.00	1.00				0.980	**0.243**	2.00		
1039.5	10	SP	12		1200	2148	1.32	1.24	1.05	1.2	0.75		4	0.00	1.00				0.979	**0.248**	2.00		
1039	10.5	SP	12		1260	2208	1.32	1.23	1.05	1.2	0.75		4	0.00	1.00				0.978	**0.253**	2.00		
1038.5	11	SP	12		1320	2268	1.32	1.21	1.05	1.2	0.75		4	0.00	1.00				0.977	**0.258**	2.00		
1038	11.5	SP	12		1380	2328	1.32	1.19	1.05	1.2	0.75		4	0.00	1.00				0.976	**0.263**	2.00		
1037.5	12	SP	12		1440	2388	1.32	1.17	1.05	1.2	0.75		4	0.00	1.00				0.975	**0.267**	2.00		
1037	12.5	SP-SM	26		1500	2448	1.32	1.15	1.05	1.2	0.75		8	0.30	1.01				0.974	**0.271**	2.00		
1036.5	13	SP-SM	26		1560	2508	1.32	1.14	1.05	1.2	0.85		8	0.30	1.01				0.973	**0.275**	2.00		
1036	13.5	SP-SM	26		1620	2568	1.32	1.12	1.05	1.2	0.85		8	0.30	1.01				0.972	**0.278**	2.00		
1035.5	14	SP-SM	26		1680	2628	1.32	1.10	1.05	1.2	0.85		8	0.30	1.01				0.971	**0.282**	2.00		
1035	14.5	SP-SM	26		1740	2688	1.32	1.09	1.05	1.2	0.85		8	0.30	1.01				0.970	**0.285**	2.00		
1034.5	15	SP-SM	26		1800	2748	1.32	1.07	1.05	1.2	0.85		8	0.30	1.01				0.969	**0.288**	2.00		
1034	15.5	SP-SM	26		1860	2808	1.32	1.06	1.05	1.2	0.85		8	0.30	1.01				0.967	**0.291**	2.00		
1033.5	16	SP-SM	30		1920	2868	1.32	1.04	1.05	1.2	0.85		10	0.87	1.02				0.966	**0.294**	2.00		
1033	16.5	SP-SM	30		1980	2928	1.32	1.03	1.05	1.2	0.85		10	0.87	1.02				0.965	**0.296**	2.00		
1032.5	17	SP-SM	13		2040	2988	1.32	1.02	1.05	1.2	0.85		10	0.87	1.02				0.964	**0.299**	2.00		
1032	17.5	SP-SM	13		2100	3048	1.32	1.00	1.05	1.2	0.85		10	0.87	1.02				0.963	**0.301**	2.00		
1031.5	18	SP-SM	13		2160	3102	1.32	0.99	1.05	1.2	0.85	18.2	10	0.87	1.02	1.3	**19**	0.209	0.962	**0.304**	0.87	0.015	0.090
1031	18.5	SP-SM	13		2220	3131	1.32	0.98	1.05	1.2	0.85	18.0	10	0.87	1.02	1.3	**19**	0.206	0.961	**0.309**	0.84	0.015	0.090
1030.5	19	SP-SM	13		2280	3160	1.32	0.97	1.05	1.2	0.85	17.8	10	0.87	1.02	1.3	**19**	0.203	0.959	**0.314**	0.82	0.015	0.090
1030	19.5	SP-SM	13		2340	3189	1.32	0.95	1.05	1.2	0.85	17.5	10	0.87	1.02	1.2	**19**	0.201	0.958	**0.319**	0.80	0.015	0.090
1029.5	20	SP-SM	13		2400	3218	1.32	0.94	1.05	1.2	0.95	19.4	10	0.87	1.02	1.3	**21**	0.224	0.957	**0.324**	0.87	0.014	0.084
1029	20.5	SP-SM	13		2460	3247	1.32	0.93	1.05	1.2	0.95	19.1	10	0.87	1.02	1.3	**20**	0.221	0.956	**0.329**	0.85	0.014	0.084
1028.5	21	SM	15		2520	3276	1.32	0.92	1.05	1.2	0.95	21.8	33	4.88	1.18	8.8	**31**		0.954	**0.333**	2.00		
1028	21.5	SM	15		2580	3305	1.32	0.91	1.05	1.2	0.95	21.6	33	4.88	1.18	8.8	**30**		0.953	**0.338**	2.00		
1027.5	22	SM	15		2640	3334	1.32	0.90	1.05	1.2	0.95	21.3	33	4.88	1.18	8.7	**30**		0.951	**0.342**	2.00		
1027	22.5	ML	5	YES	2700	3363	1.32	0.89	1.05	1.2	0.95	7.0	33	4.88	1.18	6.1	**13**	0.142	0.950	**0.346**	0.52	0.020	0.000
1026.5	23	ML	5	YES	2760	3392	1.32	0.88	1.05	1.2	0.95	6.9	33	4.88	1.18	6.1	**13**	0.141	0.948	**0.350**	0.51	0.020	0.000
1026	23.5	ML	5	YES	2789	3421	1.32	0.87	1.05	1.2	0.95	6.9	33	4.88	1.18	6.1	**13**	0.141	0.947	**0.354**	0.50	0.020	0.000
1025.5	24	ML	5	YES	2818	3450	1.32	0.87	1.05	1.2	0.95	6.9	33	4.88	1.18	6.1	**13**	0.140	0.945	**0.358**	0.50	0.021	0.000
1025	24.5	ML	5	YES	2847	3479	1.32	0.86	1.05	1.2	0.95	6.8	33	4.88	1.18	6.1	**13**	0.140	0.944	**0.362**	0.49	0.021	0.000
1024.5	25	ML	17		2876	3508	1.32	0.86	1.05	1.2	0.95	23.1	33	4.88	1.18	9.0	**32**		0.942	**0.366**	2.00		
1024	25.5	ML	17		2905	3537	1.32	0.86	1.05	1.2	0.95	23.0	33	4.88	1.18	9.0	**32**		0.940	**0.369**	2.00		
1023.5	26	ML	17		2934	3566	1.32	0.85	1.05	1.2	0.95	22.8	33	4.88	1.18	9.0	**32**		0.938	**0.373**	2.00		
1023	26.5	ML	17		2963	3595	1.32	0.85	1.05	1.2	0.95	22.7	33	4.88	1.18	9.0	**32**		0.936	**0.376**	2.00		
1022.5	27	ML	17		2992	3624	1.32	0.84	1.05	1.2	0.95	22.6	33	4.88	1.18	8.9	**32**		0.934	**0.379**	2.00		
1022	27.5	ML	17		3021	3653	1.32	0.84	1.05	1.2	0.95	22.5	33	4.88	1.18	8.9	**31**		0.932	**0.382**	2.00		
1021.5	28	ML	17		3050	3682	1.32	0.83	1.05	1.2	0.95	22.4	33	4.88	1.18	8.9	**31**		0.930	**0.385**	2.00		
1021	28.5	SW-SM	27		3079	3711	1.32	0.83	1.05	1.2	0.95	35.3	9	0.56	1.02	1.2	**37**		0.928	**0.388**	2.00		
1020.5	29	SW-SM	27		3108	3740	1.32	0.82	1.05	1.2	0.95	35.2	9	0.56	1.02	1.2	**36**		0.925	**0.391**	2.00		
1020	29.5	SW-SM	27		3137	3769	1.32	0.82	1.05	1.2	0.95	35.0	9	0.56	1.02	1.2	**36**		0.923	**0.394**	2.00		

1019.5	30	SW-SM	27		3166	3798	1.32	0.82	1.05	1.2	0.95	34.8	9	0.56	1.02	1.1	36	0.921	0.396	2.00		
1019	30.5	SW-SM	36		3195	3827	1.32	0.81	1.05	1.2	0.95	46.2	9	0.56	1.02	1.3	48	0.918	0.399	2.00		
1018.5	31	SW-SM	36		3224	3856	1.32	0.81	1.05	1.2	0.95	45.9	9	0.56	1.02	1.3	47	0.915	0.401	2.00		
1018	31.5	SW-SM	36		3253	3885	1.32	0.80	1.05	1.2	0.95	45.7	9	0.56	1.02	1.3	47	0.913	0.403	2.00		
1017.5	32	SW-SM	36		3282	3914	1.32	0.80	1.05	1.2	0.95	45.5	9	0.56	1.02	1.3	47	0.910	0.405	2.00		
1017	32.5	SW-SM	36		3311	3943	1.32	0.80	1.05	1.2	0.95	45.3	9	0.56	1.02	1.3	47	0.907	0.407	2.00		
1016.5	33	ML	27		3340	3972	1.32	0.79	1.05	1.2	1	35.6	35	5.00	1.20	12.1	48	0.904	0.409	2.00		
1016	33.5	ML	27		3369	4001	1.32	0.79	1.05	1.2	1	35.4	35	5.00	1.20	12.1	47	0.901	0.411	2.00		
1015.5	34	SW	38		3398	4030	1.32	0.78	1.05	1.2	1	49.6	5	0.00	1.00	0.1	50	0.897	0.413	2.00		
1015	34.5	SW	38		3427	4059	1.32	0.78	1.05	1.2	1	49.3	5	0.00	1.00	0.1	49	0.894	0.414	2.00		
1014.5	35	SW	38		3456	4088	1.32	0.78	1.05	1.2	1	49.1	5	0.00	1.00	0.1	49	0.891	0.415	2.00		
1014	35.5	SW	38		3485	4117	1.32	0.77	1.05	1.2	1	48.8	5	0.00	1.00	0.1	49	0.887	0.417	2.00		
1013.5	36	SW	38		3514	4146	1.32	0.77	1.05	1.2	1	48.6	5	0.00	1.00	0.1	49	0.883	0.418	2.00		
1013	36.5	SW	38		3543	4175	1.32	0.77	1.05	1.2	1	48.4	5	0.00	1.00	0.1	48	0.880	0.419	2.00		
1012.5	37	SW	38		3572	4204	1.32	0.76	1.05	1.2	1	48.1	5	0.00	1.00	0.1	48	0.876	0.420	2.00		
1012	37.5	SW	38		3601	4233	1.32	0.76	1.05	1.2	1	47.9	5	0.00	1.00	0.1	48	0.872	0.421	2.00		
1011.5	38	SW	37		3630	4262	1.32	0.75	1.05	1.2	1	46.4	5	0.00	1.00	0.1	46	0.868	0.422	2.00		
1011	38.5	SW	37		3659	4291	1.32	0.75	1.05	1.2	1	46.2	5	0.00	1.00	0.1	46	0.864	0.422	2.00		
1010.5	39	SW	37		3688	4320	1.32	0.75	1.05	1.2	1	46.0	5	0.00	1.00	0.1	46	0.860	0.423	2.00		
1010	39.5	SW	37		3717	4349	1.32	0.74	1.05	1.2	1	45.8	5	0.00	1.00	0.1	46	0.855	0.423	2.00		
1009.5	40	SW	37		3746	4378	1.32	0.74	1.05	1.2	1	45.6	5	0.00	1.00	0.1	46	0.851	0.424	2.00		
1009	40.5	ML	51		3775	4407	1.32	0.74	1.05	1.2	1	62.5	35	5.00	1.20	17.5	80	0.847	0.424	2.00		
1008.5	41	SW	51		3804	4436	1.32	0.73	1.05	1.2	1	62.3	5	0.00	1.00	0.1	62	0.842	0.424	2.00		
1008	41.5	SW	51		3833	4465	1.32	0.73	1.05	1.2	1	62.0	5	0.00	1.00	0.1	62	0.837	0.424	2.00		
1007.5	42	SW	51		3862	4494	1.32	0.73	1.05	1.2	1	61.7	5	0.00	1.00	0.1	62	0.833	0.424	2.00		
1007	42.5	SW	51		3891	4523	1.32	0.72	1.05	1.2	1	61.4	5	0.00	1.00	0.1	61	0.828	0.424	2.00		
1006.5	43	ML	44		3920	4552	1.32	0.72	1.05	1.2	1	52.7	35	5.00	1.20	15.5	68	0.823	0.424	2.00		
1006	43.5	SW	50		3949	4581	1.32	0.72	1.05	1.2	1	59.7	5	0.00	1.00	0.1	60	0.818	0.423	2.00		
1005.5	44	SW	50		3978	4610	1.32	0.71	1.05	1.2	1	59.4	5	0.00	1.00	0.1	59	0.814	0.423	2.00		
1005	44.5	SW	50		4007	4639	1.32	0.71	1.05	1.2	1	59.1	5	0.00	1.00	0.1	59	0.809	0.423	2.00		
1004.5	45	SW	50		4036	4668	1.32	0.71	1.05	1.2	1	58.9	5	0.00	1.00	0.1	59	0.804	0.422	2.00		
1004	45.5	SW	50		4065	4697	1.32	0.70	1.05	1.2	1	58.6	5	0.00	1.00	0.1	59	0.799	0.422	2.00		
1003.5	46	SW	50		4094	4726	1.32	0.70	1.05	1.2	1	58.4	5	0.00	1.00	0.1	58	0.794	0.421	2.00		
1003	46.5	SW	50		4123	4755	1.32	0.70	1.05	1.2	1	58.1	5	0.00	1.00	0.1	58	0.788	0.420	2.00		
1002.5	47	SW	50		4152	4784	1.32	0.70	1.05	1.2	1	57.9	5	0.00	1.00	0.1	58	0.783	0.419	2.00		
1002	47.5	SW	50		4181	4813	1.32	0.69	1.05	1.2	1	57.6	5	0.00	1.00	0.1	58	0.778	0.419	2.00		
1001.5	48	SW	50		4210	4842	1.32	0.69	1.05	1.2	1	57.4	5	0.00	1.00	0.1	57	0.773	0.418	2.00		
1001	48.5	SW	50		4239	4871	1.32	0.69	1.05	1.2	1	57.1	5	0.00	1.00	0.1	57	0.768	0.417	2.00		
1000.5	49	SW	50		4268	4900	1.32	0.68	1.05	1.2	1	56.9	5	0.00	1.00	0.1	57	0.763	0.416	2.00		
1000	49.5	SW	50		4297	4929	1.32	0.68	1.05	1.2	1	56.6	5	0.00	1.00	0.1	57	0.758	0.415	2.00		
999.5	50	SW	50		4326	4958	1.32	0.68	1.05	1.2	1	56.4	5	0.00	1.00	0.1	56	0.753	0.414	2.00		
999	50.5	SW	50		4355	4987	1.32	0.68	1.05	1.2	1	56.2	5	0.00	1.00	0.1	56	0.748	0.413	2.00		
998.5	51	SW	50		4384	5016	1.32	0.67	1.05	1.2	1	55.9	5	0.00	1.00	0.1	56	0.743	0.411	2.00		
998	51.5	SW	50		4413	5045	1.32	0.67	1.05	1.2	1	55.7	5	0.00	1.00	0.1	56	0.738	0.410	2.00		
997.5	52	SW	50		4442	5074	1.32	0.67	1.05	1.2	1	55.5	5	0.00	1.00	0.1	56	0.733	0.409	2.00		
997	52.5	SW	50		4471	5103	1.32	0.66	1.05	1.2	1	55.2	5	0.00	1.00	0.1	55	0.728	0.408	2.00		
996.5	53	SW	50		4500	5132	1.32	0.66	1.05	1.2	1	55.0	5	0.00	1.00	0.1	55	0.723	0.407	2.00		
996	53.5	SW	50		4529	5161	1.32	0.66	1.05	1.2	1	54.8	5	0.00	1.00	0.1	55	0.718	0.405	2.00		
995.5	54	SW	50		4558	5190	1.32	0.66	1.05	1.2	1	54.5	5	0.00	1.00	0.1	55	0.713	0.404	2.00		
995	54.5	SW	50		4587	5219	1.32	0.65	1.05	1.2	1	54.3	5	0.00	1.00	0.1	54	0.708	0.403	2.00		
994.5	55	SW	50		4616	5248	1.32	0.65	1.05	1.2	1	54.1	5	0.00	1.00	0.1	54	0.703	0.402	2.00		
994	55.5	SW	50		4645	5277	1.32	0.65	1.05	1.2	1	53.9	5	0.00	1.00	0.1	54	0.699	0.400	2.00		
993.5	56	SW	50		4674	5306	1.32	0.65	1.05	1.2	1	53.7	5	0.00	1.00	0.1	54	0.694	0.399	2.00		
993	56.5	SW	50		4703	5335	1.32	0.64	1.05	1.2	1	53.5	5	0.00	1.00	0.1	54	0.689	0.398	2.00		
992.5	57	SW	50		4732	5364	1.32	0.64	1.05	1.2	1	53.2	5	0.00	1.00	0.1	53	0.685	0.397	2.00		
992	57.5	SW	50		4761	5393	1.32	0.64	1.05	1.2	1	53.0	5	0.00	1.00	0.1	53	0.680	0.395	2.00		
991.5	58	SW	50		4790	5422	1.32	0.64	1.05	1.2	1	52.8	5	0.00	1.00	0.1	53	0.676	0.394	2.00		
991	58.5	SW	50		4819	5451	1.32	0.63	1.05	1.2	1	52.6	5	0.00	1.00	0.1	53	0.672	0.393	2.00		
990.5	59	SW	50		4848	5480	1.32	0.63	1.05	1.2	1	52.4	5	0.00	1.00	0.1	52	0.668	0.392	2.00		
990	59.5	SW	50		4877	5509	1.32	0.63	1.05	1.2	1	52.2	5	0.00	1.00	0.1	52	0.663	0.390	2.00		
989.5	60	SW	50		4906	5538	1.32	0.63	1.05	1.2	1	52.0	5	0.00	1.00	0.1	52	0.659	0.389	2.00		
989	60.5	SW	50		4935	5567	1.32	0.62	1.05	1.2	1	51.8	5	0.00	1.00	0.1	52	0.655	0.388	2.00		
988.5	61	SW	50		4964	5596	1.32	0.62	1.05	1.2	1	51.6	5	0.00	1.00	0.1	52	0.651	0.387	2.00		
						948								0.00	1.00						0.000	
						948															0.000	
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																					0.000	0.000
																						0.528

SPT Liquefaction Spreadsheet

JOB NAME	Prpoosed Temecula Hospital	Boring	GDI-10		
DATE	8/12/2010	*y*	120	pcf	
BY	CJZ	GW level	26	ft	
CHECKED BY		HHGL	16.4	ft	
DATE		GS Elevation	1051		
		LFFE	1057.5		

Magnitue	a max
6.84	0.88

MSF 1.27

Total Settlement 0.66 INCHES

Elevation (MSL)	Depth (feet)	Soil Type	Nfield	Boulanger and Idriss (2006)	σo' (psf) current	σo' (psf) HHGWL	C_E	C_N	C_B	C_S	C_R	$(N_1)_{60}$	Fines Correction			ΔN	$(N_1)_{60}$	CRR 1998 eq.	Rd	CSR	FOS	SETTLEMENT (%)	SETTLEMENT (inches)
					psf	psf	energy	stress	5" diam	w/out liner	rod	interim Corr.	%fines	Alpha	Beta		<N=30						
1050	1	SP-SM	7		120	900	1.32	1.75	1.05	1.2	0.75		10	0.87	1.02				1.000	**0.061**	2.00		
1049.5	1.5	SP-SM	7		180	960	1.32	1.71	1.05	1.2	0.75		10	0.87	1.02				0.998	**0.085**	2.00		
1049	2	SP-SM	7		240	1020	1.32	1.68	1.05	1.2	0.75		10	0.87	1.02				0.997	**0.107**	2.00		
1048.5	2.5	SP-SM	7		300	1080	1.32	1.64	1.05	1.2	0.75		10	0.87	1.02				0.996	**0.126**	2.00		
1048	3	SP-SM	7		360	1140	1.32	1.61	1.05	1.2	0.75		10	0.87	1.02				0.995	**0.143**	2.00		
1047.5	3.5	SP-SM	7		420	1200	1.32	1.57	1.05	1.2	0.75		10	0.87	1.02				0.994	**0.158**	2.00		
1047	4	SP-SM	7		480	1260	1.32	1.54	1.05	1.2	0.75		10	0.87	1.02				0.993	**0.172**	2.00		
1046.5	4.5	SP-SM	7		540	1320	1.32	1.51	1.05	1.2	0.75		10	0.87	1.02				0.991	**0.184**	2.00		
1046	5	SP-SM	7		600	1380	1.32	1.48	1.05	1.2	0.75		10	0.87	1.02				0.990	**0.195**	2.00		
1045.5	5.5	SP-SM	9		660	1440	1.32	1.46	1.05	1.2	0.75		10	0.87	1.02				0.989	**0.206**	2.00		
1045	6	SP-SM	9		720	1500	1.32	1.43	1.05	1.2	0.75		10	0.87	1.02				0.988	**0.215**	2.00		
1044.5	6.5	SP-SM	9		780	1560	1.32	1.40	1.05	1.2	0.75		10	0.87	1.02				0.987	**0.224**	2.00		
1044	7	SP-SM	9		840	1620	1.32	1.38	1.05	1.2	0.75		10	0.87	1.02				0.986	**0.232**	2.00		
1043.5	7.5	ML	21		900	1680	1.32	1.35	1.05	1.2	0.75		35	5.00	1.20				0.985	**0.239**	2.00		
1043	8	ML	21		960	1740	1.32	1.33	1.05	1.2	0.75		35	5.00	1.20				0.983	**0.246**	2.00		
1042.5	8.5	ML	21		1020	1800	1.32	1.31	1.05	1.2	0.75		35	5.00	1.20				0.982	**0.253**	2.00		
1042	9	ML	21		1080	1860	1.32	1.29	1.05	1.2	0.75		35	5.00	1.20				0.981	**0.259**	2.00		
1041.5	9.5	ML	21		1140	1920	1.32	1.27	1.05	1.2	0.75		35	5.00	1.20				0.980	**0.264**	2.00		
1041	10	SP-SM	18		1200	1980	1.32	1.24	1.05	1.2	0.75		9	0.56	1.02				0.979	**0.269**	2.00		
1040.5	10.5	SP-SM	18		1260	2040	1.32	1.23	1.05	1.2	0.75		9	0.56	1.02				0.978	**0.274**	2.00		
1040	11	SP-SM	18		1320	2100	1.32	1.21	1.05	1.2	0.75		9	0.56	1.02				0.977	**0.279**	2.00		
1039.5	11.5	SP-SM	18		1380	2160	1.32	1.19	1.05	1.2	0.75		9	0.56	1.02				0.976	**0.283**	2.00		
1039	12	SP-SM	18		1440	2220	1.32	1.17	1.05	1.2	0.75		9	0.56	1.02				0.975	**0.287**	2.00		
1038.5	12.5	SP	18		1500	2280	1.32	1.15	1.05	1.2	0.75		5	0.00	1.00				0.974	**0.291**	2.00		
1038	13	SP	18		1560	2340	1.32	1.14	1.05	1.2	0.85		5	0.00	1.00				0.973	**0.294**	2.00		
1037.5	13.5	SP	18		1620	2400	1.32	1.12	1.05	1.2	0.85		5	0.00	1.00				0.972	**0.298**	2.00		
1037	14	SP	18		1680	2460	1.32	1.10	1.05	1.2	0.85		5	0.00	1.00				0.971	**0.301**	2.00		
1036.5	14.5	SP	18		1740	2520	1.32	1.09	1.05	1.2	0.85		5	0.00	1.00				0.970	**0.304**	2.00		
1036	15	SP	18		1800	2580	1.32	1.07	1.05	1.2	0.85		5	0.00	1.00				0.969	**0.307**	2.00		
1035.5	15.5	SP-SM	30		1860	2640	1.32	1.06	1.05	1.2	0.85		9	0.56	1.02				0.967	**0.309**	2.00		
1035	16	SP-SM	30		1920	2700	1.32	1.04	1.05	1.2	0.85		9	0.56	1.02				0.966	**0.312**	2.00		
1034.5	16.5	SP-SM	30		1980	2754	1.32	1.03	1.05	1.2	0.85	43.7	9	0.56	1.02	1.3	**45.0**		0.965	**0.315**	2.00		
1034	17	SP-SM	30		2040	2783	1.32	1.02	1.05	1.2	0.85	43.1	9	0.56	1.02	1.3	**44.4**		0.964	**0.321**	2.00		
1033.5	17.5	SP-SM	34		2100	2812	1.32	1.00	1.05	1.2	0.85	48.2	9	0.56	1.02	1.4	**49.6**		0.963	**0.327**	2.00		
1033	18	SP-SM	34		2160	2841	1.32	0.99	1.05	1.2	0.85	47.6	9	0.56	1.02	1.4	**49.0**		0.962	**0.332**	2.00		
1032.5	18.5	SP-SM	34		2220	2870	1.32	0.98	1.05	1.2	0.85	47.0	9	0.56	1.02	1.4	**48.4**		0.961	**0.337**	2.00		
1032	19	SP-SM	34		2280	2899	1.32	0.97	1.05	1.2	0.85	46.4	9	0.56	1.02	1.3	**47.8**		0.959	**0.343**	2.00		
1031.5	19.5	SP-SM	34		2340	2928	1.32	0.95	1.05	1.2	0.85	45.9	9	0.56	1.02	1.3	**47.2**		0.958	**0.348**	2.00		
1031	20	SP-SM	34		2400	2957	1.32	0.94	1.05	1.2	0.95	50.6	9	0.56	1.02	1.4	**52.0**		0.957	**0.353**	2.00		
1030.5	20.5	SM	16		2460	2986	1.32	0.93	1.05	1.2	0.95	23.5	33	4.88	1.18	9.1	**32.7**		0.956	**0.357**	2.00		
1030	21	SM	16		2520	3015	1.32	0.92	1.05	1.2	0.95	23.3	33	4.88	1.18	9.1	**32.3**		0.954	**0.362**	2.00		
1029.5	21.5	SM	16		2580	3044	1.32	0.91	1.05	1.2	0.95	23.0	33	4.88	1.18	9.0	**32.0**		0.953	**0.367**	2.00		
1029	22	SM	16		2640	3073	1.32	0.90	1.05	1.2	0.95	22.7	33	4.88	1.18	9.0	**31.7**		0.951	**0.371**	2.00		
1028.5	22.5	ML	12		2700	3102	1.32	0.89	1.05	1.2	0.95	16.8	56	5.00	1.20	8.4	**25.2**	0.296	0.950	**0.375**	1.00	0.011	0.066
1028	23	ML	12		2760	3131	1.32	0.88	1.05	1.2	0.95	16.7	56	5.00	1.20	8.3	**25.0**	0.292	0.948	**0.380**	0.97	0.014	0.084
1027.5	23.5	ML	12		2820	3160	1.32	0.87	1.05	1.2	0.95	16.5	56	5.00	1.20	8.3	**24.8**	0.287	0.947	**0.384**	0.95	0.014	0.084
1027	24	ML	12		2880	3189	1.32	0.86	1.05	1.2	0.95	16.3	56	5.00	1.20	8.3	**24.5**	0.283	0.945	**0.388**	0.92	0.014	0.084
1026.5	24.5	ML	10	YES	2940	3218	1.32	0.85	1.05	1.2	0.95	13.4	56	5.00	1.20	7.7	**21.1**	0.230	0.944	**0.391**	0.74	0.014	0.000
1026	25	ML	10	YES	3000	3247	1.32	0.84	1.05	1.2	0.95	13.3	56	5.00	1.20	7.7	**20.9**	0.227	0.942	**0.395**	0.73	0.014	0.000
1025.5	25.5	ML	10	YES	3060	3276	1.32	0.83	1.05	1.2	0.95	13.1	56	5.00	1.20	7.6	**20.8**	0.225	0.940	**0.399**	0.71	0.014	0.000
1025	26	ML	10	YES	3120	3305	1.32	0.82	1.05	1.2	0.95	13.0	56	5.00	1.20	7.6	**20.6**	0.223	0.938	**0.402**	0.70	0.014	0.000
1024.5	26.5	ML	10	YES	3149	3334	1.32	0.82	1.05	1.2	0.95	12.9	56	5.00	1.20	7.6	**20.5**	0.222	0.936	**0.405**	0.69	0.014	0.000
1024	27	ML	10	YES	3178	3363	1.32	0.81	1.05	1.2	0.95	12.9	56	5.00	1.20	7.6	**20.4**	0.221	0.934	**0.409**	0.68	0.014	0.000
1023.5	27.5	ML	22	YES	3207	3392	1.32	0.81	1.05	1.2	0.95	28.2	29	4.64	1.15	8.8	**36.9**		0.932	**0.412**	2.00		
1023	28	ML	22	YES	3236	3421	1.32	0.81	1.05	1.2	0.95	28.0	29	4.64	1.15	8.7	**36.8**		0.930	**0.415**	2.00		
1022.5	28.5	ML	22	YES	3265	3450	1.32	0.80	1.05	1.2	0.95	27.9	29	4.64	1.15	8.7	**36.6**		0.928	**0.418**	2.00		
1022	29	SM	22	YES	3294	3479	1.32	0.80	1.05	1.2	0.95	27.7	29	4.64	1.15	8.7	**36.4**		0.925	**0.420**	2.00		
1021.5	29.5	SM	19		3323	3508	1.32	0.79	1.05	1.2	0.95	23.8	21	3.78	1.09	5.8	**29.7**	0.446	0.923	**0.423**	1.34	0.000	0.002

1021	30	SM	19		3352	3537	1.32	0.79	1.05	1.2	0.95	23.7	21	3.78	1.09	5.8	**29.5**	0.439	0.921	**0.425**	1.31	0.000	0.002
1020.5	30.5	SM	19		3381	3566	1.32	0.79	1.05	1.2	0.95	23.6	21	3.78	1.09	5.8	**29.4**	0.432	0.918	**0.428**	1.28	0.000	0.002
1020	31	SM	19		3410	3595	1.32	0.78	1.05	1.2	0.95	23.5	21	3.78	1.09	5.8	**29.3**	0.425	0.915	**0.430**	1.25	0.000	0.002
1019.5	31.5	SM	19		3439	3624	1.32	0.78	1.05	1.2	0.95	23.4	21	3.78	1.09	5.8	**29.2**	0.419	0.913	**0.432**	1.23	0.001	0.005
1019	32	SM	19		3468	3653	1.32	0.77	1.05	1.2	0.95	23.3	21	3.78	1.09	5.8	**29.0**	0.413	0.910	**0.434**	1.20	0.001	0.005
1018.5	32.5	SP	19		3497	3682	1.32	0.77	1.05	1.2	0.95	23.2	21	3.78	1.09	5.8	**28.9**	0.407	0.907	**0.436**	1.18	0.001	0.005
1018	33	SP	19		3526	3711	1.32	0.77	1.05	1.2	1	24.3	12	1.55	1.03	2.3	**26.6**	0.327	0.904	**0.438**	0.95	0.011	0.066
1017.5	33.5	SP	17		3555	3740	1.32	0.76	1.05	1.2	1	21.6	12	1.55	1.03	2.2	**23.8**	0.271	0.901	**0.440**	0.78	0.014	0.084
1017	34	SP	17		3584	3769	1.32	0.76	1.05	1.2	1	21.5	12	1.55	1.03	2.2	**23.7**	0.269	0.897	**0.441**	0.77	0.014	0.084
1016.5	34.5	SP	17		3613	3798	1.32	0.76	1.05	1.2	1	21.4	12	1.55	1.03	2.2	**23.6**	0.267	0.894	**0.443**	0.76	0.014	0.084
1016	35	SP-SM	31		3642	3827	1.32	0.75	1.05	1.2	1	38.8	7	0.12	1.01	0.5	**39.3**		0.891	**0.444**	2.00		
1015.5	35.5	SP-SM	31		3671	3856	1.32	0.75	1.05	1.2	1	38.6	7	0.12	1.01	0.4	**39.1**		0.887	**0.445**	2.00		
1015	36	SP-SM	31		3700	3885	1.32	0.75	1.05	1.2	1	38.5	7	0.12	1.01	0.4	**38.9**		0.883	**0.446**	2.00		
1014.5	36.5	SP-SM	31		3729	3914	1.32	0.74	1.05	1.2	1	38.3	7	0.12	1.01	0.4	**38.7**		0.880	**0.447**	2.00		
1014	37	SP-SM	31		3758	3943	1.32	0.74	1.05	1.2	1	38.1	7	0.12	1.01	0.4	**38.6**		0.876	**0.448**	2.00		
1013.5	37.5	SP-SM	31		3787	3972	1.32	0.74	1.05	1.2	1	37.9	7	0.12	1.01	0.4	**38.4**		0.872	**0.449**	2.00		
1013	38	SP-SM	38		3816	4001	1.32	0.73	1.05	1.2	1	46.3	7	0.12	1.01	0.5	**46.8**		0.868	**0.449**	2.00		
1012.5	38.5	SP-SM	38		3845	4030	1.32	0.73	1.05	1.2	1	46.1	7	0.12	1.01	0.5	**46.6**		0.864	**0.450**	2.00		
1012	39	SP-SM	38		3874	4059	1.32	0.73	1.05	1.2	1	45.9	7	0.12	1.01	0.5	**46.4**		0.860	**0.450**	2.00		
1011.5	39.5	SP-SM	38		3903	4088	1.32	0.72	1.05	1.2	1	45.7	7	0.12	1.01	0.5	**46.2**		0.855	**0.450**	2.00		
1011	40	SM	29		3932	4117	1.32	0.72	1.05	1.2	1	34.7	22	3.93	1.09	7.2	**41.9**		0.851	**0.451**	2.00		
1010.5	40.5	SM	29		3961	4146	1.32	0.72	1.05	1.2	1	34.5	22	3.93	1.09	7.1	**41.7**		0.847	**0.451**	2.00		
1010	41	SM	29		3990	4175	1.32	0.71	1.05	1.2	1	34.4	22	3.93	1.09	7.1	**41.5**		0.842	**0.451**	2.00		
1009.5	41.5	SM	29		4019	4204	1.32	0.71	1.05	1.2	1	34.2	22	3.93	1.09	7.1	**41.4**		0.837	**0.450**	2.00		
1009	42	SM	29		4048	4233	1.32	0.71	1.05	1.2	1	34.1	22	3.93	1.09	7.1	**41.2**		0.833	**0.450**	2.00		
1008.5	42.5	SM	29		4077	4262	1.32	0.70	1.05	1.2	1	33.9	22	3.93	1.09	7.1	**41.0**		0.828	**0.450**	2.00		
1008	43	SP	55		4106	4291	1.32	0.70	1.05	1.2	1	64.1	5	0.00	1.00	0.1	**64.2**		0.823	**0.450**	2.00		
1007.5	43.5	SP	55		4135	4320	1.32	0.70	1.05	1.2	1	63.8	5	0.00	1.00	0.1	**63.9**		0.818	**0.449**	2.00		
1007	44	SP	55		4164	4349	1.32	0.69	1.05	1.2	1	63.5	5	0.00	1.00	0.1	**63.6**		0.814	**0.448**	2.00		
1006.5	44.5	SP	55		4193	4378	1.32	0.69	1.05	1.2	1	63.3	5	0.00	1.00	0.1	**63.3**		0.809	**0.448**	2.00		
1006	45	SP-SM	25		4222	4407	1.32	0.69	1.05	1.2	1	28.6	12	1.55	1.03	2.5	**31.1**		0.804	**0.447**	2.00		
1005.5	45.5	SP-SM	25		4251	4436	1.32	0.69	1.05	1.2	1	28.5	12	1.55	1.03	2.5	**31.0**		0.799	**0.446**	2.00		
1005	46	SP-SM	25		4280	4465	1.32	0.68	1.05	1.2	1	28.4	12	1.55	1.03	2.4	**30.8**		0.794	**0.445**	2.00		
1004.5	46.5	SP-SM	25		4309	4494	1.32	0.68	1.05	1.2	1	28.3	12	1.55	1.03	2.4	**30.7**		0.788	**0.445**	2.00		
1004	47	SP-SM	25		4338	4523	1.32	0.68	1.05	1.2	1	28.1	12	1.55	1.03	2.4	**30.6**		0.783	**0.444**	2.00		
1003.5	47.5	SP-SM	25		4367	4552	1.32	0.67	1.05	1.2	1	28.0	12	1.55	1.03	2.4	**30.5**		0.778	**0.443**	2.00		
1003	48	SP-SM	25		4396	4581	1.32	0.67	1.05	1.2	1	27.9	12	1.55	1.03	2.4	**30.3**		0.773	**0.441**	2.00		
1002.5	48.5	SP-SM	25		4425	4610	1.32	0.67	1.05	1.2	1	27.8	12	1.55	1.03	2.4	**30.2**		0.768	**0.440**	2.00		
1002	49	SP-SM	25		4454	4639	1.32	0.67	1.05	1.2	1	27.7	12	1.55	1.03	2.4	**30.1**		0.763	**0.439**	2.00		
1001.5	49.5	SW	77		4483	4668	1.32	0.66	1.05	1.2	1	84.9	12	1.55	1.03	4.2	**89.1**		0.758	**0.438**	2.00		
1001	50	SW	77		4512	4697	1.32	0.66	1.05	1.2	1	84.5	12	1.55	1.03	4.2	**88.8**		0.753	**0.437**	2.00		
1000.5	50.5	SW	77		4541	4726	1.32	0.66	1.05	1.2	1	84.2	12	1.55	1.03	4.2	**88.4**		0.748	**0.435**	2.00		
1000	51	SW	77		4570	4755	1.32	0.65	1.05	1.2	1	83.9	12	1.55	1.03	4.2	**88.1**		0.743	**0.434**	2.00		
999.5	51.5	SW	77		4599	4784	1.32	0.65	1.05	1.2	1	83.5	12	1.55	1.03	4.2	**87.7**		0.738	**0.433**	2.00		
999	52	SW	77		4628	4813	1.32	0.65	1.05	1.2	1	83.2	12	1.55	1.03	4.2	**87.4**		0.733	**0.431**	2.00		
998.5	52.5	SW	77		4657	4842	1.32	0.65	1.05	1.2	1	82.8	12	1.55	1.03	4.2	**87.0**		0.728	**0.430**	2.00		
998	53	SW	77		4686	4871	1.32	0.64	1.05	1.2	1	82.5	12	1.55	1.03	4.2	**86.7**		0.723	**0.428**	2.00		
997.5	53.5	SW	77		4715	4900	1.32	0.64	1.05	1.2	1	82.2	12	1.55	1.03	4.1	**86.3**		0.718	**0.427**	2.00		
997	54	SW	77		4744	4929	1.32	0.64	1.05	1.2	1	81.9	12	1.55	1.03	4.1	**86.0**		0.713	**0.426**	2.00		
996.5	54.5	SW	77		4773	4958	1.32	0.64	1.05	1.2	1	81.5	12	1.55	1.03	4.1	**85.7**		0.708	**0.424**	2.00		
996	55	SW	77		4802	4987	1.32	0.63	1.05	1.2	1	81.2	12	1.55	1.03	4.1	**85.3**		0.703	**0.423**	2.00		
995.5	55.5	SW	77		4831	5016	1.32	0.63	1.05	1.2	1	80.9	12	1.55	1.03	4.1	**85.0**		0.699	**0.421**	2.00		
995	56	SW	77		4860	5045	1.32	0.63	1.05	1.2	1	80.6	12	1.55	1.03	4.1	**84.7**		0.694	**0.420**	2.00		
994.5	56.5	SW	77		4889	5074	1.32	0.63	1.05	1.2	1	80.3	12	1.55	1.03	4.1	**84.3**		0.689	**0.418**	2.00		
994	57	SW	77		4918	5103	1.32	0.62	1.05	1.2	1	79.9	12	1.55	1.03	4.1	**84.0**		0.685	**0.417**	2.00		
993.5	57.5	SW	77		4947	5132	1.32	0.62	1.05	1.2	1	79.6	12	1.55	1.03	4.1	**83.7**		0.680	**0.415**	2.00		
993	58	SW	77		4976	5161	1.32	0.62	1.05	1.2	1	79.3	12	1.55	1.03	4.1	**83.4**		0.676	**0.414**	2.00		
992.5	58.5	SW	77		5005	5190	1.32	0.62	1.05	1.2	1	79.0	12	1.55	1.03	4.0	**83.1**		0.672	**0.413**	2.00		
992	59	SW	77		5034	5219	1.32	0.61	1.05	1.2	1	78.7	12	1.55	1.03	4.0	**82.8**		0.668	**0.411**	2.00		
991.5	59.5	SW	77		5063	5248	1.32	0.61	1.05	1.2	1	78.4	12	1.55	1.03	4.0	**82.5**		0.663	**0.410**	2.00		
991	60	SW	77		5092	5277	1.32	0.61	1.05	1.2	1	78.1	12	1.55	1.03	4.0	**82.1**		0.659	**0.408**	2.00		
990.5	60.5	SW	77		5121	5306	1.32	0.61	1.05	1.2	1	77.8	12	1.55	1.03	4.0	**81.8**		0.655	**0.407**	2.00		
990	61	SW	77		5150	5335	1.32	0.61	1.05	1.2	1	77.5	12	1.55	1.03	4.0	**81.5**		0.651	**0.406**	2.00		
						780								0.00	1.00						0.000	
						780															0.000	
						780															0.000	
						780															0.000	
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																						0.662

ACRONYMS

ACRONYMS

AC	asphalt concrete
ASCE	American Society of Civil Engineers
ASTM	American Society for Testing and Materials
BGS	below ground surface
CGS	California Geological Survey
CPT	cone penetrometer test
CUR	Central Utility Room
FEMA	Federal Emergency Management Agency
g	gravitational acceleration (32.2 feet/second^2)
H:V	horizontal to vertical
HDPE	high-density polyethylene
IBC	International Building Code
km	kilometers
MCE	maximum considered earthquake
mm/year	millimeters per year
MSL	mean sea level
N	north
NCEER	National Center for Earthquake Engineering Research
NE	northeast
NGA	Next Generation Attenuation
NNE	north-northeast
NNW	north-northwest
NW	northwest
OSHPD	Office of Statewide Health Planning and Development
PCC	portland cement concrete
pci	pounds per cubic inch
psi	pounds per square inch
PGA	peak ground acceleration
psf	pounds per square foot
PSHA	probabilistic seismic hazard analysis
PSI	Professional Service Industries, Inc.
SE	southeast
SPT	standard penetration test
SW	southwest
USGS	U.S. Geological Survey
W	west
WSW	west-southwest

Appendix E

Preliminary Water Quality Management Plan

City of Temecula
WATER QUALITY MANAGEMENT PLAN (WQMP)

PROJECT NAME & PERMIT Nº:
Temecula Valley Hospital
PROJECT ADDRESS:
Temecula Medical Center
31700 Temecula Parkway
Temecula, CA, 92592
PROJECT APN:
959-080-001-959-080-004 and 959-080-007-959-080-010

PREPARED BY:
Excel Engineering

Name Robert Dentino
Address 440 State Place
Escondido, CA, 92029

Phone (760) 745-8118
Email avanloy@excelengineering.net

PREPARED FOR:

Name Universal Health Services
Of Rancho Springs, Inc.
Address 367 South Gulph Road
King Of Prussia, PA, 194

Phone
Email

DATE OF WQMP:
May 20,2022

APPROVED BY:

APPROVAL DATE:

TEMECULA VALLEY HOSPITAL MASTER PLAN UPDATE WATER QUALITY OVERVIEW MEMO

****NOTE****

THIS ELECTRONIC REPORT HAS BOOKMARKS INCLUDED FOR USER-FRIENDLY ATTACHEMENT RETRIEVAL.

TEMECULA VALLEY HOSPITAL MASTER PLAN UPDATE
WATER QUALITY OVERVIEW MEMO

The purpose of this WQMP Addendum is to further provide clarification and discussion on the intent of the Ultimate Build-out Condition of the proposed Master Plan. Phase 1 of the hospital has been built and the rest of the site has been mass graded for future phases. As this site was previously Master Planned and developed with appropriate permits and documentation to satisfy requirements (at the time) of the applicable codes and Manuals, it is the intent of this new Master Plan to adhere to, as close as possible, that original design intent.

This Water Quality Overview Memo has been prepared to demonstrate that water quality requirements have been met per Section 1.10 of the City of Temecula BMP Manual dated July 2018. The following conditions for Grandfathering per Section 1.10 are met as follows: (For the exact language included in that Section, see Attachment 2).

(a) The Original WQMP was approved in 2011. (See Attachment 1).The WQMP Report included water quality design for the entirety of the site at Ultimate Conditions. The sites water quality was met with Modular Wetland Systems, Sand Filters, Biofiltration Swales, and Infiltration and Detention Treatment Basins. (See Attachment 3 and Attachment 6) Hydromodification was not required and the project was approved with none. (See Attachments 4 and 5).

(b) The project was Approved Prior to July 2018 and the first phase of construction was completed with approved storm water drainage system and cleaning incorporated.

(c) Construction activities commenced in 2011-2013 on the original hospital project, which is on or before July 4, 2018.

(d) It is the intent of this project to proceed so that all further private project permits or approvals that need to be issued to reflect the build-out of the approved in the Water Quality Ultimate Condition (Section A) will be issued before July 4, 2023. The Developer understands that if permits are not issued by that time for the entirety of the water quality system they will be required to completely redesign the site.

The Ultimate Condition and design in its entirety will remain in substantial conformance with the initially approved design (Section A). The areas proposed in the Original Ultimate Condition and the Current Proposed Ultimate conditions match with negligible differences. The Percent Impervious is roughly in the same range (in fact the proposed Master Plan has less impervious surface than the original design approved in 2011), therefore the C factor will not change for Hydrology. That study will be prepared in detail (to also include the hydraulic calculations for the channel at the east side of the project) to reflect the complete site plan revision and the different nuances in the drainage paths.
(See Attachment 7)

ATTACHMENTS

ATTACHMENT 1
FIRST SHEET OF THE APPROVED WQMP

Project-Specific
Water Quality Management Plan

TEMECULA MEDICAL CENTER
31700 Temecula Parkway
Temecula, CA 92592

Parcel Nos. 959-080-001 – 959-080-004 and
959-080-007 – 959-080-010

Design Review No. PA10-0194

Prepared for:

Universal Health Services
367 South Gulph Road
King of Prussia, PA 19406
610.768.3300
William Seed, Project Manager
800.347.7750

Prepared by:

URS Corporation

Cynthia Gabaldon, P.E.,CPSWQ, CPESC
3500 Porsche Way, Suite 300
Ontario, CA 91764
909.980.4000

Margie De Laurell, P.E. Engineer/Project Manager
1950 N. Stemmons Freeway, Suite 6000
Dallas, TX 75207
214.741.7777

Bryan Paine, P.E.
2020 E. 1st Street, Suite 400
Santa Ana, CA 92705
714.835.6886

WQMP Preparation/Revision Date:
July 2007, April 2010, October 2010, December 2010, May 2011, June 2011

ATTACHMENT 2
REFERENCES TO THE CITY OF TEMECULAR BMP DESIGN MANUAL
JULY 2018

1.10 Storm Water Requirement Applicability Timeline

Regional MS4 Permit Provision E.3.e.(1)(a)

A PDP may be allowed to implement the requirements from the 2014 WQMP to meet post construction stormwater requirements if the project meets one of the following criteria prior to July 5, 2018:

1. Approved[4] a design that incorporates the stormwater drainage system for the PDP in its entirety, including all applicable structural pollutant treatment control and hydromodification management BMPs consistent with the 2014 WQMP; AND
2. Issued a private project permit or approval, or functional equivalent for public projects, that authorizes the PDP applicant to commence construction activities based on a design that incorporates the stormwater drainage system approved in conformance with Section 1.10.1.; AND
3. Confirmed that there have been construction activities on the PDP site within the 365 days prior to July 4, 2018 OR the applicant confirms that construction activities will commence on the PDP site within 180 days after July 4, 2018, where construction activities are undertaken in reliance on the permit or approval, or functional equivalent for public projects, issued by the City Engineer in conformance with Section 1.10.2.; AND
4. Issued all subsequent private project permits or approvals, or functional equivalent for public projects, that are needed to implement the design initially approved in conformance with Section 1.10.1. within 5 years of July 4, 2018. The stormwater drainage system for the PDP in its entirety, including all applicable structural pollutant treatment control and hydromodification management BMPs must remain in substantial conformity with the design initially approved in conformance with Section 1.10.1. OR
5. Project applicant demonstrates that the jurisdiction lacks land use authority or legal authority to require a PDP to implement the post construction stormwater requirements listed above.

Guidance on Prior Lawful Approval ("Grandfathering")

The effective date of the Temecula City BMP Design Manual is July 4, 2018. A Priority Development Project may be allowed to meet the requirements of the previous 2014 WQMP rather than the BMP Design Manual if it meets the City's prior lawful approval requirements. A project is considered to have prior lawful approval if it meets ALL of the following conditions:

(a) Prior to July 4, 2018, the project received approval by the City for a design that incorporates the stormwater drainage system for the Priority Development Project in its entirety, including all applicable structural pollutant treatment control and hydromodification management BMPs consistent with the 2010 SMR MS4 Permit (Order No. R9-2010-0016).

(b) Prior to July 4, 2018, the project was issued a private project permit or approval, or functional equivalent for public projects, that authorized the Priority Development Project applicant to

[4] For public projects, a design stamped by the City Engineer, or engineer of record for the project is considered an approved design.

commence construction activities based on a design that incorporates the stormwater drainage system approved in conformance with item (a) above.

(c) Construction activities on the Priority Development Project site commenced within the 365 days prior to the effective date of the BMP Design Manual (i.e., on or after July 4, 2018), OR construction activities on the Priority Development Project site commenced within the 180 days after the effective date of the BMP Design Manual (i.e., on or before January 1, 2019), where construction activities are undertaken in reliance on the permit or approval, or functional equivalent for public projects, described in item (b) above.

(d) All subsequent private project permits or approvals, or functional equivalent for public projects, that are needed to implement the design initially approved in conformance with item (a) above are issued within 5 years of the effective date of the BMP Design Manual (i.e., on or before July 4, 2023). The stormwater drainage system for the Priority Development Project in its entirety, including all applicable structural pollutant treatment control and hydromodification management BMPs must remain in substantial conformity with the design initially approved in conformance with item (a) above.

Acceptance of a determination made by a project applicant regarding prior lawful approval, and subjectivity to the previous Temecula WQMP, is at the discretion of the City Engineer. The City Engineer has no obligation to accept the determination made by the project applicant. Note that a project is also considered to have prior lawful approval if the City lacks the land use authority or legal authority to require the project to meet the updated requirements described in this BMP Design Manual, as determined by the City Attorney.

1.11 Project Review Procedures

zThe City of Temecula reviews project plans for compliance with applicable requirements of this manual and the Regional MS4 Permit.

Specific submittal requirements for documentation of permanent, post-construction stormwater BMPs may vary by project type; however, in all cases the project applicant must provide sufficient documentation to demonstrate that applicable requirements of this manual and the Regional MS4 Permit will be met.

For Standard Projects, this typically means using the project WQMP (see submittal template in Appendix A) or other equivalent documents approved by the City Engineer to document that the following general requirements of the Regional MS4 Permit are met, and showing applicable features onsite grading, building, improvement and landscaping plans:

- BMP Requirements for All Development Projects, which includes general requirements, source control BMP requirements, and narrative (i.e. not numerically-sized) site design requirements (Regional MS4 Permit Provision E.3.a).

For PDPs, this typically means preparing Exhibit A "PDP Requirements" and attaching to the WQMP to document that the following general requirements of the Regional MS4 Permit are met, and showing applicable features on site, grading, and landscaping plans:

- BMP Requirements for All Development Projects, which includes general requirements for siting of permanent, post-construction BMPs, source control BMP requirements, and narrative (i.e. not numerically-sized) site design requirements (Regional MS4 Permit Provision E.3.a);
- Storm Water Pollutant Control BMP Requirements, for numerically sized onsite structural BMPs to control pollutants in stormwater (Regional MS4 Permit Provision E.3.c.(1)); and

- Hydromodification Management BMP Requirements, which includes protection of critical sediment yield areas and numerically sized onsite BMPs to manage hydromodification that may be caused by stormwater runoff discharged from a project (Regional MS4 Permit Provision E.3.c.(2)).

Detailed submittal requirements are provided in Chapter 8 of this manual. Documentation of the permanent, post-construction stormwater BMPs at the discretion of the City Engineer must be provided with the first submittal of a project or another preliminary planning stage defined by the City Engineer. Stormwater requirements will directly affect the layout of the project. Therefore stormwater requirements must be considered from the initial project planning phases, and will be reviewed with each submittal, beginning with the first submittal.

1.12 PDP Structural BMP Verification

Regional MS4 Permit Provision E.3.e.(1)

Structural BMPs must be verified by the City prior to project occupancy.

Pursuant to Regional MS4 Permit Provision E.3.e.(1), the City must require and confirm the following with respect to PDPs constructed within its jurisdiction:

(a) The City must require and confirm that appropriate easements and ownerships are properly recorded in public records and the information is conveyed to all appropriate parties when there is a change in project or site ownership.

(b) The City must require and confirm that prior to occupancy and/or intended use of any portion of the PDP, each structural BMP is inspected to verify that it has been constructed and is operating in compliance with all of its specifications, plans, permits, ordinances, and the requirements of the Regional MS4 Permit.

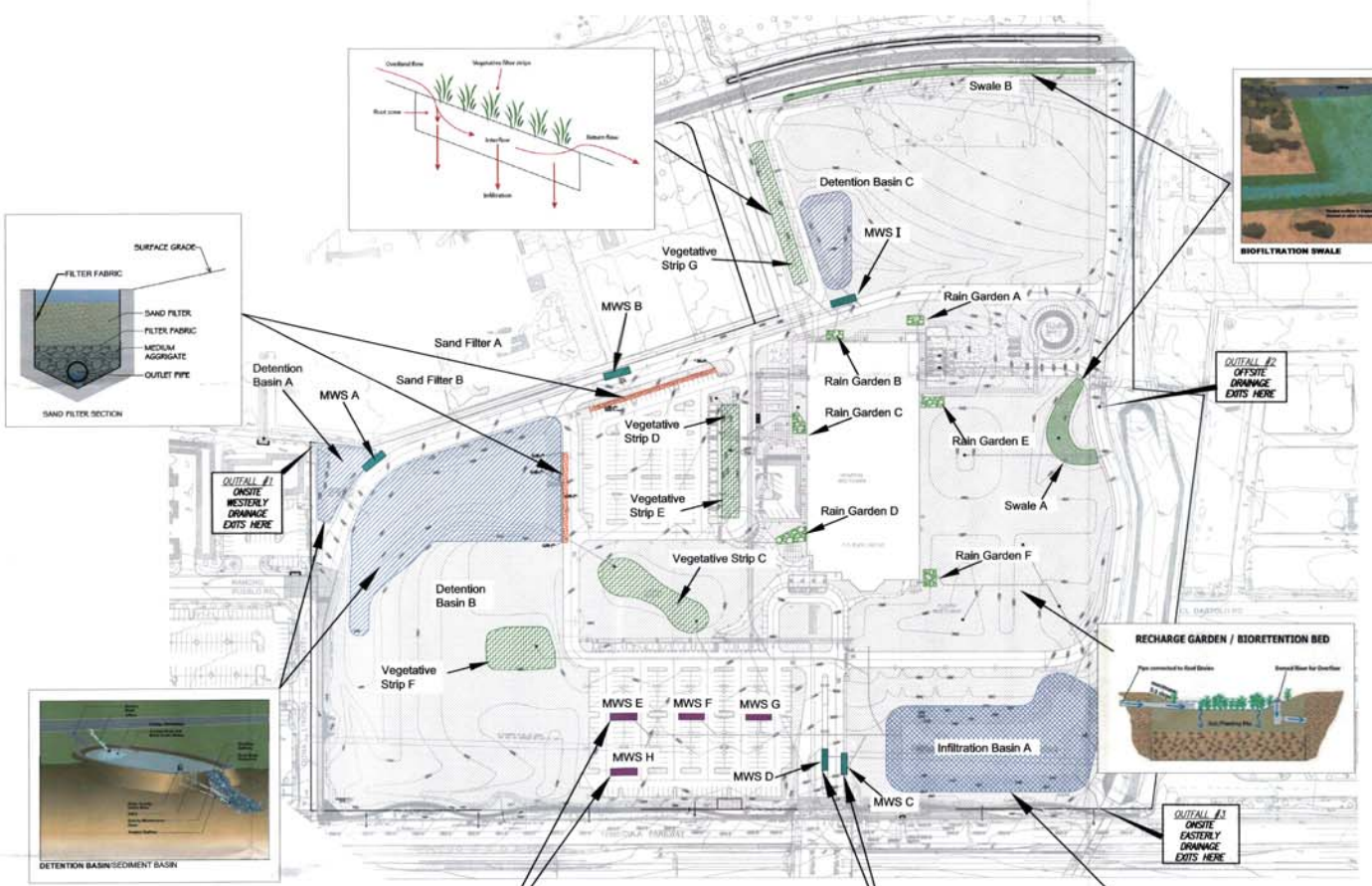
For PDPs, this means that after structural BMPs have been constructed, the City Engineer may request the project owner provide a certification that the site improvements for the project have been constructed in conformance with the approved stormwater management documents and drawings.

The City Engineer may require inspection of the structural BMPs at each significant construction stage and at completion. Following construction, the City may require an addendum to the WQMP and As Builts to address any changes to the structural BMPs that occurred during construction that were approved by the City Engineer. The City may also require a final update to the O&M Plan, and/or execution of a maintenance agreement that will be recorded for the property. A maintenance agreement that is recorded with the property title can then be transferred to future owners.

Certification of structural BMPs, updates to reports, and recordation of a maintenance agreement may occur concurrently with project closeout, but could be required sooner per City practices. In all cases, it is required prior to occupancy and/or intended use of the project. Specific procedures are provided in Chapter 8 of this manual.

Verification packages are prepared as Attachment 4 to the WQMP Exhibit A "PDP Requirements"

ATTACHMENT 3
WQMP EXHIBITS JUNE 2011



BMP SITE PLAN - PHASE I

Client:
Universal Health Services, Inc
367 South Gulph Road
King of Prussia, PA 19406
T 610 768 3300

Architect of Record:
HMC Architects
1010 Second Ave, Studio 810,
West Tower
San Diego, CA 92101
T 619 744 4077

Civil Engineer:
URS
1950 Stemmons Freeway,
Suite 6000
Dallas, Texas 75207
(214) 741-7777
(214) 741-9413 Fax

Design/Build Partners:
Turner Construction Company
DPR Construction Inc.

Temecula Valley Hospital
Temecula, CA.

Agency Approval
REVIEWED IN ACCORDANCE WITH THE REQUIREMENTS OF T24, NOT APPROVED

Office of Statewide Health Planning & Development Facilities Development Division

OSHPD NO.

HMC Project No. 2308006

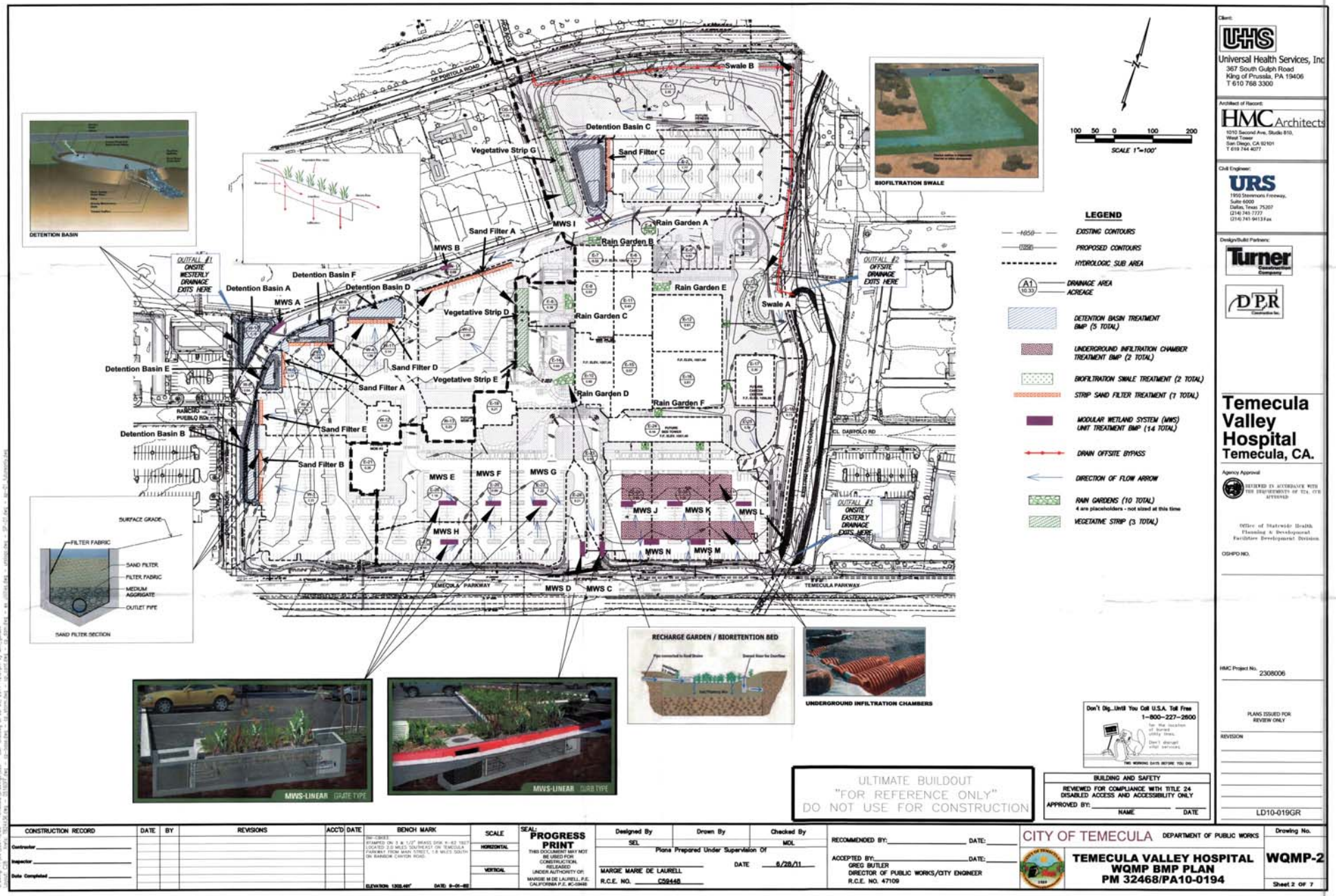
PLANS ISSUED FOR REVIEW ONLY

REVISION

Don't Dig...Until You Call U.S.A. Toll Free 1-800-227-2600
for the location of buried utility lines
Don't disrupt vital services
TWO WORKING DAYS BEFORE YOU DIG

BUILDING AND SAFETY
REVIEWED FOR COMPLIANCE WITH TITLE 24 DISABLED ACCESS AND ACCESSIBILITY ONLY
APPROVED BY: _____ NAME _____ DATE

CONSTRUCTION RECORD	DATE	BY	REVISIONS	ACC'D	DATE	BENCH MARK	SCALE	SEAL: PROGRESS PRINT	Designed By	Drawn By	Checked By	RECOMMENDED BY: _____ DATE: _____	CITY OF TEMECULA DEPARTMENT OF PUBLIC WORKS	Drawing No.
Contractor _____						BM-1(NGS) STAMPED ON 3 & 1/2" BRASS DISK K-62 1927 LOCATED 2.0 MILES SOUTHEAST ON TEMECULA PARKWAY FROM MAIN STREET, 1.6 MILES SOUTH ON RANDOM CANYON ROAD.	HORIZONTAL	THIS DOCUMENT MAY NOT BE USED FOR CONSTRUCTION. RELEASED UNDER AUTHORITY OF: MARGIE M DE LAURELL, P.E. CALIFORNIA P.E. #C-59448	SEL	MDL		ACCEPTED BY: _____ DATE: _____ GREG BUTLER DIRECTOR OF PUBLIC WORKS/CITY ENGINEER R.C.E. NO. 47109	TEMECULA VALLEY HOSPITAL PHASE I BMP PLAN PM 32468/PA10-0194	WQMP-1
Inspector _____							VERTICAL		Plans Prepared Under Supervision Of					
Date Completed _____						ELEVATION: 1305.49' DATE: 9-01-02			MARGIE MARIE DE LAURELL	DATE 6/28/11				Sheet 1 OF 7
									R.C.E. NO. C59448					



ULTIMATE BUILDOUT
"FOR REFERENCE ONLY"
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for the location of buried utility lines.
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BUILDING AND SAFETY
REVIEWED FOR COMPLIANCE WITH TITLE 24 DISABLED ACCESS AND ACCESSIBILITY ONLY
APPROVED BY: _____ NAME _____ DATE

CONSTRUCTION RECORD	DATE	BY	REVISIONS	ACC'D	DATE	BENCH MARK	SCALE
Contractor _____						BM-08E3 STAMPED ON 3 & 1/2" BRASS DISK K-62 1927 LOCATED 3.0 MILES SOUTHERLY ON TEMECULA PARKWAY FROM MAIN STREET, 1.6 MILES SOUTH ON RANCHO CANYON ROAD.	HORIZONTAL
Inspector _____							VERTICAL
Date Completed _____						ELEVATION 1308.49' DATE 9-01-82	

SEAL: PROGRESS PRINT
THIS DOCUMENT MAY NOT BE USED FOR CONSTRUCTION. RELEASED UNDER AUTHORITY OF: MARGIE M DE LAURELL, P.E. CALIFORNIA P.E. #C-59448

Designed By	Drawn By	Checked By
SEL		MDL

Plans Prepared Under Supervision Of
MARGIE MARIE DE LAURELL
R.C.E. NO. C59448
DATE 6/28/11

RECOMMENDED BY: _____ DATE: _____
ACCEPTED BY: _____ DATE: _____
GREG BUTLER
DIRECTOR OF PUBLIC WORKS/CITY ENGINEER
R.C.E. NO. 47109

CITY OF TEMECULA DEPARTMENT OF PUBLIC WORKS

TEMECULA VALLEY HOSPITAL
WQMP BMP PLAN
PM 32468/PA10-0194

Drawing No. **WQMP-2**
Sheet 2 OF 7

Client:
Universal Health Services, Inc
367 South Gulph Road
King of Prussia, PA 19406
T 610 768 3300

Architect of Record:
HMC Architects
1010 Second Ave, Studio 810,
West Tower
San Diego, CA 92101
T 619 744 4077

Civil Engineer:
URS
1950 Stemmons Freeway,
Suite 6000
Dallas, Texas 75207
(214) 741-7727
(214) 741-9413 Fax

Design/Build Partners:
Turner Construction Company
DPR Construction Inc.

Temecula Valley Hospital
Temecula, CA.

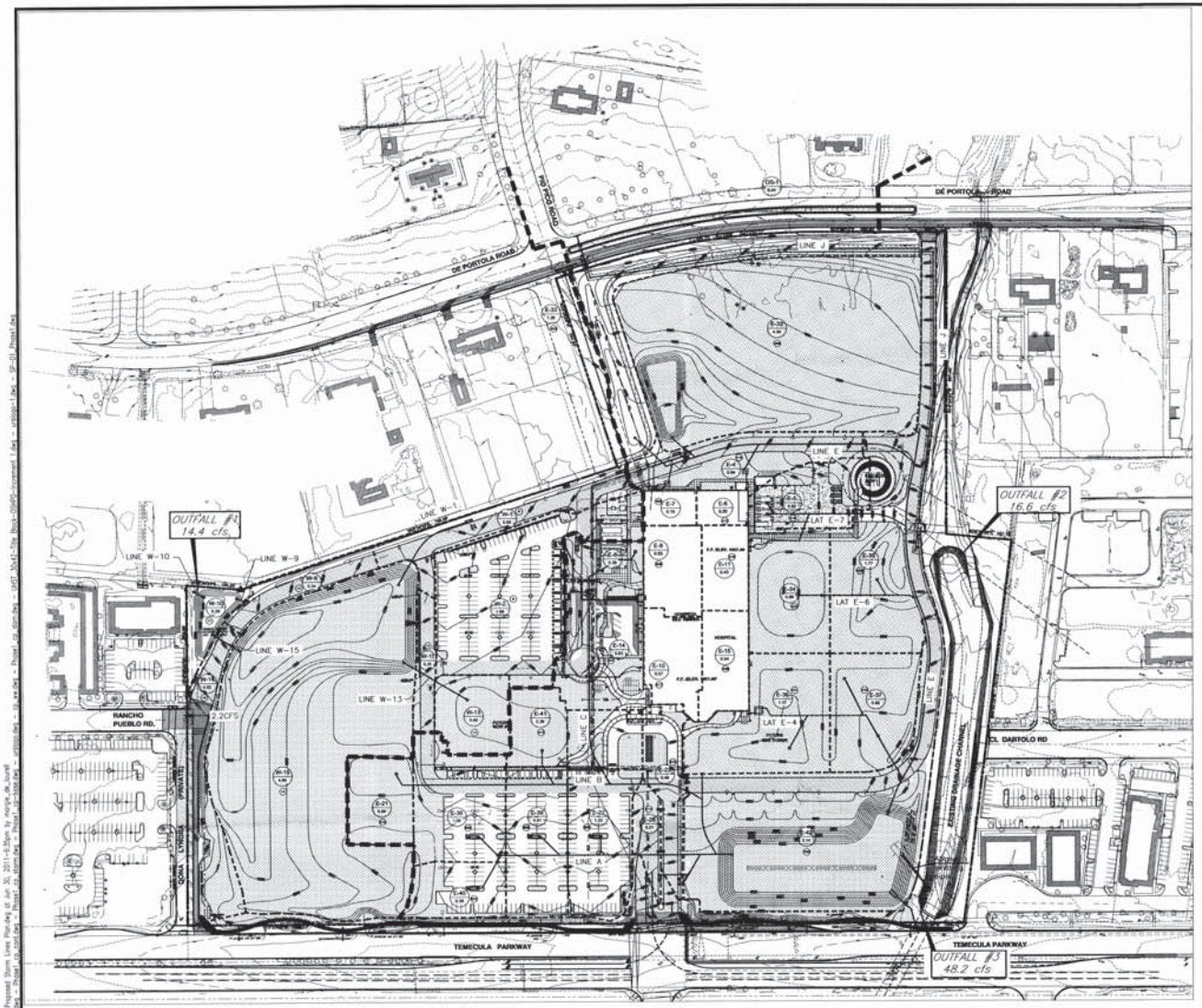
Agency Approval
REVIEWED IN ACCORDANCE WITH THE REQUIREMENTS OF Tit. 24 CCR APPROVED
Office of Statewide Health Planning & Development Facilities Development Division
OSHPD NO.

HMC Project No. 2308006

PLANS ISSUED FOR REVIEW ONLY

REVISION

LD10-019GR



LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- DRAINAGE AREA DIVIDES
- EAST/WEST DRAINAGE AREAS BOUNDARY
- A1 / 10.33 — DRAINAGE AREA / ACREAGE
- OUTFALL #1 — OUTFALL NUMBER

100 50 0 100 200

LEGEND

- PROPOSED STORM PIPE
- DRAINAGE BOUNDARY LINE
- PROPOSED INLET STRUCTURE
- DETENTION BASIN STAND PIPE
- PROPOSED HEADWALL
- PROPOSED LANDSCAPED AREA
- TO BE CONSTRUCTED WITH STREET IMPROVEMENT PLANS.
- 130 — NODE #

OUTFALL #2 - OFFSITE

DRAINAGE AREA	AREA (ACRES)	C	Iae (in/hr)	Qae (cfs)
OS-1	8.44	0.83	4.6	16.6

OUTFALL #1 - WEST

DRAINAGE AREA	AREA (ACRES)	C	Iae (in/hr)	Qae (cfs)
W-1	0.68	0.89	3.9	2.4
W-2	1.88	0.89	4.0	6.8
W-9	0.34	0.89	3.6	1.1
W-10	0.28	0.89	3.6	0.9
W-11	0.25	0.89	4.0	0.9
W-13	0.49	0.85	4.0	1.7
W-15	4.85	0.85	2.9	11.8
TOTAL	8.77			

RUNOFF TO RANCHO PUEBLO RD

DRAINAGE AREA	AREA (ACRES)	C	Iae (in/hr)	Qae (cfs)
W-14	0.82	0.84	3.1	2.2

OUTFALL #3 - EAST

DRAINAGE AREA	AREA (ACRES)	C	Iae (in/hr)	Qae (cfs)
E-4	0.84	0.89	4.0	2.9
E-5	0.62	0.89	4.8	2.7
E-6	0.20	0.89	5.1	0.9
E-7	0.15	0.89	5.1	0.7
E-8	0.38	0.89	4.5	1.5
E-9	0.53	0.89	4.7	2.2
E-10	0.57	0.89	4.5	2.3
E-11	0.43	0.89	4.5	1.7
E-14	0.83	0.89	4.0	2.9
E-15	0.54	0.89	4.1	2.0
E-21	0.50	0.84	3.3	1.4
E-22	1.22	0.89	4.2	4.5
E-23	0.48	0.89	3.9	1.7
E-28	0.21	0.89	4.8	0.9
E-32	4.30	0.83	2.7	9.6
E-33	1.26	0.82	2.4	2.5
E-34	0.86	0.85	3.4	2.4
E-35	1.77	0.83	2.7	4.0
E-36	1.17	0.84	2.8	2.8
E-37	0.85	0.83	3.3	2.4
E-38	1.06	0.89	4.3	4.1
E-39	0.81	0.89	5.1	3.7
E-40	0.58	0.89	4.9	2.5
E-41	0.39	0.84	3.2	1.0
E-42	3.14	0.83	2.5	6.6
TOTAL	23.69			

Don't Dig...Until You Call U.S.A. Toll Free 1-800-227-2600 for the location of buried utility lines. Don't disrupt vital services. TWO WORKING DAYS BEFORE YOU DIG

BUILDING AND SAFETY
REVIEWED FOR COMPLIANCE WITH TITLE 24 DISABLED ACCESS AND ACCESSIBILITY ONLY
APPROVED BY: _____ NAME _____ DATE

Client:
Universal Health Services, Inc
367 South Gulph Road
King of Prussia, PA 19406
T 610 768 3300

Architect of Record:
HMC Architects
1010 Second Ave, Studio 810,
West Tower
San Diego, CA 92101
T 619 744 4077

Civil Engineer:
URS
1950 Stemmons Freeway,
Suite 6000
Dallas, Texas 75207
(214) 741-7777
(214) 741-9413 Fax

Design/Build Partners:
Turner Construction Company
DPR Construction Inc.

Temecula Valley Hospital
Temecula, CA.

Agency Approval
REVIEWED IN ACCORDANCE WITH THE REQUIREMENTS OF T24, CCR APPROVED
Office of Statewide Health Planning & Development Facilities Development Division
OSHPD NO.

HMC Project No. 2308006

PLANS ISSUED FOR REVIEW ONLY

REVISION

LD10-019GR

REVISED BID DOCUMENTS 06-28-2011

CONSTRUCTION RECORD	DATE	BY	REVISIONS	ACC'D	DATE	BENCH MARK	SCALE
Contractor _____						BM "CB&S" STAMPED ON 3 & 1/2" BRASS DISK K-62 1927 LOCATED 2.0 MILES SOUTHEAST ON TEMECULA FARMWAY FROM MAIN STREET, 1.8 MILES SOUTH ON RAINBOW CANYON ROAD.	HORIZONTAL
Inspector _____							
Date Completed _____						ELEVATION: 1,303.49' DATE: 8-01-82	VERTICAL

SEAL: **PROGRESS PRINT**
THIS DOCUMENT MAY NOT BE USED FOR CONSTRUCTION. RELEASED UNDER AUTHORITY OF: MARGIE M DE LAURELL, P.E. CALIFORNIA P.E. #C-59448

Designed By	Drawn By	Checked By
SEL		MDL

Plans Prepared Under Supervision Of
MARGIE MARIE DE LAURELL
R.C.E. NO. C59448
DATE 6/28/11

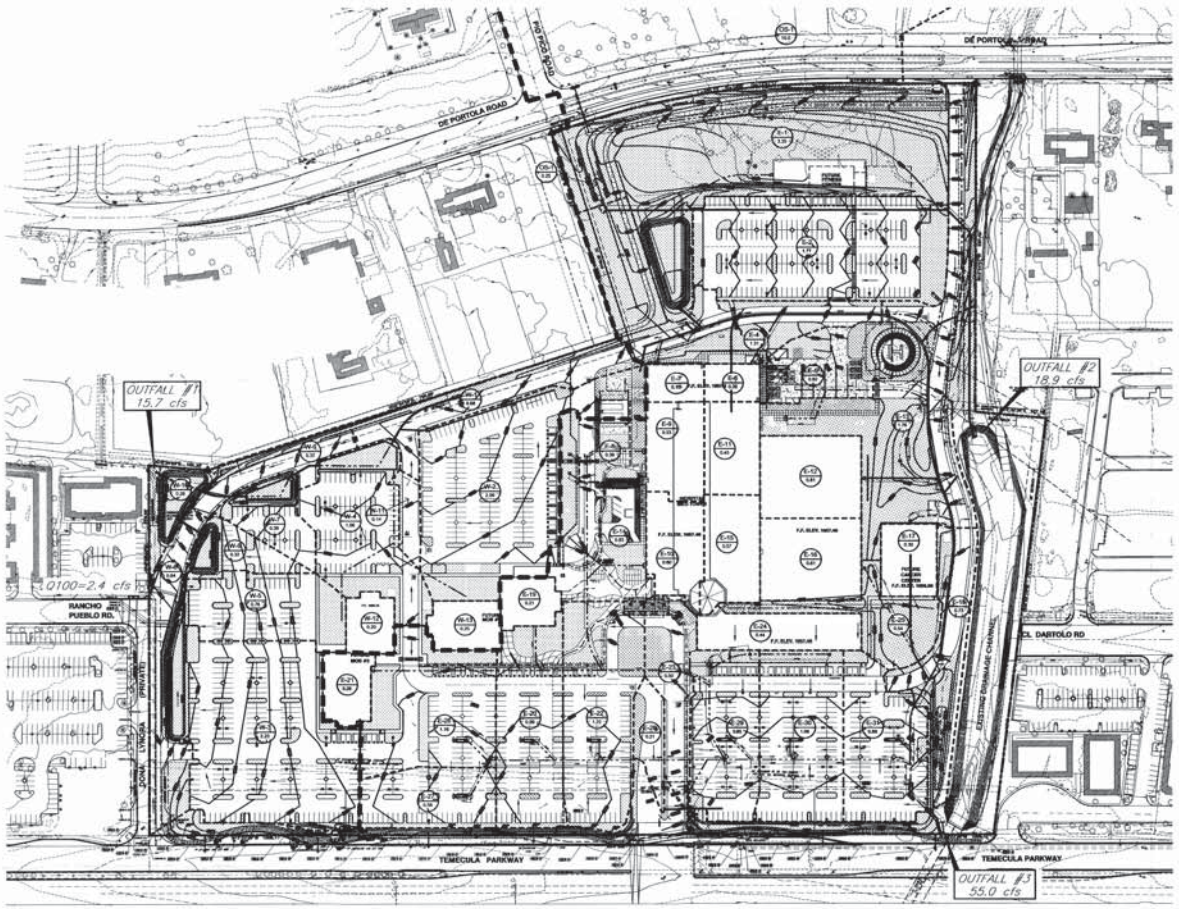
RECOMMENDED BY: _____ DATE: _____
ACCEPTED BY: _____ DATE: _____
GREG BUTLER
DIRECTOR OF PUBLIC WORKS/CITY ENGINEER
R.C.E. NO. 47109

CITY OF TEMECULA DEPARTMENT OF PUBLIC WORKS

TEMECULA VALLEY HOSPITAL
PHASE 1 DRAINAGE AREA MAP
PM 32468/PA10-0194

Drawing No. WQMP -3
Sheet 3 of 7

Drawing: P:\UNIV\205143.00 - Temecula\Drawings\Phase1\ - Proposed Storm Lines Plan.dwg at Jun 30, 2011 - 8:39pm by margie.de.laurell
Xrefs: 10x42-Title Block-ISPD-Increment 1.dwg - ansiarch.dwg - 10x42-Title Block-ISPD-Increment 1.dwg - ansiarch.dwg - Phase1_ug_storm.dwg - 10x42-Title Block-ISPD-Increment 1.dwg - ansiarch.dwg - SP-01-Phase1.dwg
Plotted: 6/28/2011 3:39 PM by margie.de.laurell
Xrefs: P:\UNIV\205143.00 - Temecula\Drawings\Phase1\Phase1_ug_storm.dwg P:\UNIV\205143.00 - Temecula\Drawings\Phase1\10x42-Title Block-ISPD-Increment 1.dwg P:\UNIV\205143.00 - Temecula\Drawings\Phase1\ansiarch.dwg



LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- DRAINAGE AREA DIVIDES
- EAST/WEST DRAINAGE AREAS BOUNDARY
- A1 / 10.33 — DRAINAGE AREA / ACREAGE
- TO BE CONSTRUCTED WITH STREET IMPROVEMENT PLANS.
- OUTFALL #1 — OUTFALL NUMBER
- EXISTING OR PROPOSED LANDSCAPED AREAS

N

100 50 0 100 200

SCALE 1"=100'

OUTFALL #2 - OFFSITE

DRAINAGE AREA	AREA (ACRES)	C	I_{100} (in/hr)	Q_{100} (cfs)
OS-1	10.0	0.83	2.3	18.9

OUTFALL #1 - WEST

DRAINAGE AREA	AREA (ACRES)	C	I_{100} (in/hr)	Q_{100} (cfs)
W-1	0.68	0.89	3.9	2.4
W-2	2.09	0.89	3.8	7.1
W-3	2.23	0.89	3.6	7.1
W-4	1.06	0.89	3.6	3.4
W-5	0.78	0.89	3.6	2.5
W-6	0.32	0.89	3.5	1.0
W-7	0.38	0.89	3.4	1.1
W-8	0.64	0.89	4.2	2.4
W-9	0.37	0.89	3.3	1.1
W-10	0.28	0.89	3.3	0.8
W-11	0.14	0.89	3.5	0.4
W-12	0.20	0.89	4.7	0.8
W-13	0.25	0.89	5.1	1.1
TOTAL	9.42			

OUTFALL #3 - EAST

DRAINAGE AREA	AREA (ACRES)	C	I_{100} (in/hr)	Q_{100} (cfs)
E-1	3.35	0.83	2.7	7.7
E-2	1.77	0.89	4.1	6.5
E-4	1.31	0.89	4.1	4.7
E-5	0.62	0.89	5.1	2.8
E-6	0.20	0.89	4.8	0.9
E-7	0.15	0.89	5.1	0.7
E-8	0.38	0.89	4.5	1.5
E-9	0.53	0.89	4.8	2.3
E-10	0.60	0.89	4.6	2.3
E-11	0.43	0.89	4.5	1.7
E-12	0.61	0.89	4.3	2.3
E-13	1.76	0.89	3.8	5.9
E-14	0.83	0.89	4.0	3.0
E-15	0.57	0.89	4.4	2.2
E-16	0.61	0.89	4.4	2.4
E-17	0.30	0.89	4.7	1.2
E-18	0.73	0.89	3.5	2.3
E-19	0.21	0.89	5.1	1.0
E-20	0.99	0.89	4.6	4.1
E-21	0.26	0.89	4.9	1.1
E-22	1.22	0.89	4.4	4.8
E-23	0.50	0.89	4.0	1.8
E-24	0.44	0.89	4.1	1.6
E-25	0.54	0.89	4.8	2.3
E-26	1.18	0.89	4.4	4.6
E-27	0.56	0.89	4.5	2.3
E-28	0.21	0.89	4.4	0.8
E-29	0.85	0.89	4.5	3.4
E-30	1.06	0.89	4.3	4.1
E-31	0.89	0.89	4.6	3.6
TOTAL	24.02			

ULTIMATE BUILDOUT
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REVIEWED FOR COMPLIANCE WITH TITLE 24 DISABLED ACCESS AND ACCESSIBILITY ONLY
APPROVED BY: _____ NAME _____ DATE

Client:
UHS
Universal Health Services, Inc
367 South Gulph Road
King of Prussia, PA 19406
T 610 768 3300

Architect of Record:
HMC Architects
1010 Second Ave, Studio 810,
West Tower
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T 619 744 4077

Civil Engineer:
URS
1950 Stemmons Freeway,
Suite 6006
Dallas, Texas 75207
(214) 741-7777
(214) 741-9413 Fax

Design/Build Partners:
Turner Construction Company
DPR Construction Inc.

Temecula Valley Hospital
Temecula, CA.

Agency Approval
REVIEWED IN ACCORDANCE WITH THE REQUIREMENTS OF T24, CCR APPROVED
Office of Statewide Health Planning & Development Facilities Development Division
OSHPD NO.

HMC Project No. 2308006

PLANS ISSUED FOR REVIEW ONLY

REVISION

REVISED BID DOCUMENTS 06-28-2011

CONSTRUCTION RECORD	DATE	BY	REVISIONS	ACC'D	DATE	BENCH MARK	SCALE
Contractor						56'-0345 STAMPED ON 3 & 1/2" BRASS DISK K-62 1927 LOCATED 2.0 MILES SOUTHEAST ON TEMECULA PARKWAY FROM MAIN STREET, 1.8 MILES SOUTH ON RAINBOW CANYON ROAD.	HORIZONTAL
Inspector							
Date Completed						ELEVATION: 1302.480' DATE: 8-01-62	VERTICAL

SEAL: PROGRESS PRINT
THIS DOCUMENT MAY NOT BE USED FOR CONSTRUCTION, RELEASED UNDER AUTHORITY OF: MARGIE M DE LAURELL, P.E. CALIFORNIA P.E. #C-59448

Designed By	Drawn By	Checked By
SEL		MDL

Plans Prepared Under Supervision Of
MARGIE MARIE DE LAURELL
R.C.E. NO. C59448
DATE 6/28/11

RECOMMENDED BY: _____ DATE: _____
ACCEPTED BY: _____ DATE: _____
GREG BUTLER
DIRECTOR OF PUBLIC WORKS/CITY ENGINEER
R.C.E. NO. 47109

CITY OF TEMECULA DEPARTMENT OF PUBLIC WORKS

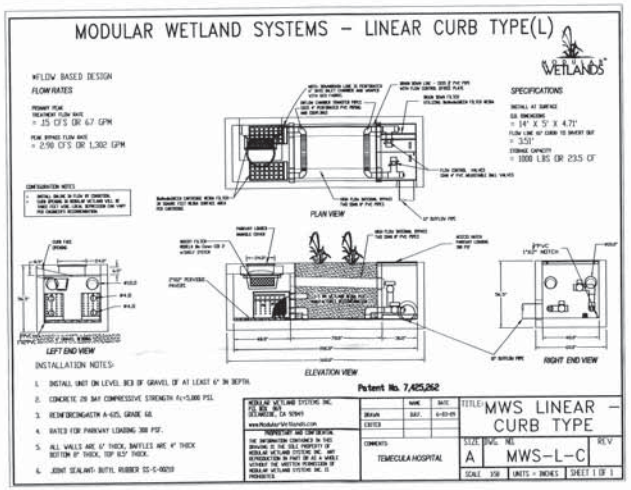
TEMECULA VALLEY HOSPITAL
ULTIMATE PROPOSED HYDROLOGY
PM 32468/PA10-0194

Drawing No. WQMP - 4
Sheet 4 of 7

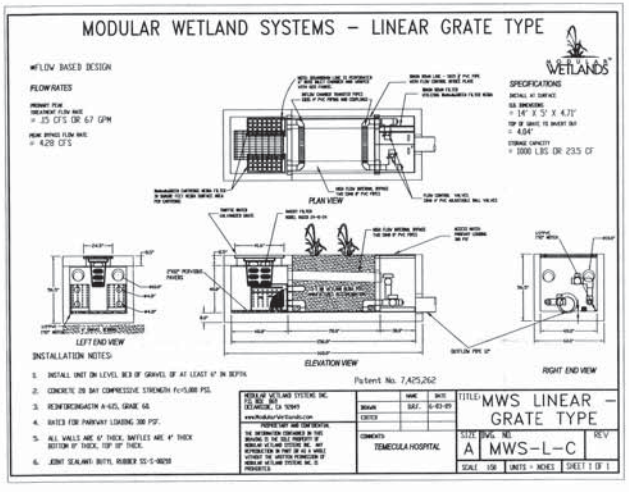
LD10-019GR

Drawing: P:\JW\32512.00 - temecula\Drawings\C18 - Overall Proposed Hydrology.dwg at Jun 30, 2011-6:38pm by margie_de_laurell

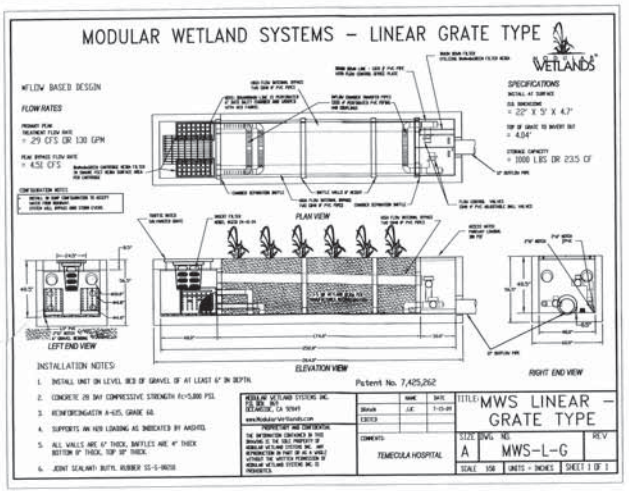
MODULAR WETLAND SYSTEMS – LINEAR CURB TYPE(L)



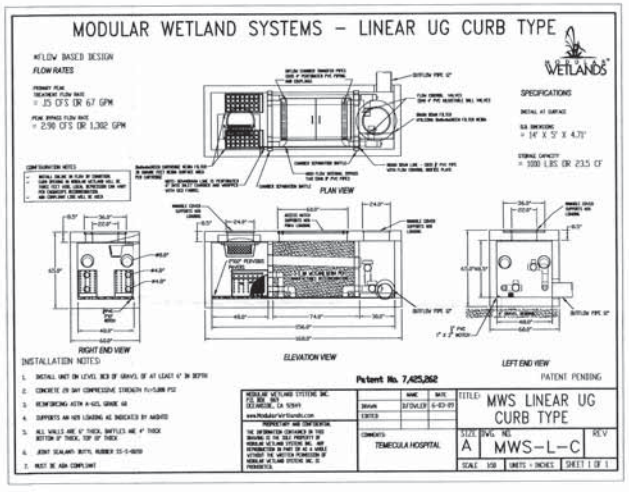
MODULAR WETLAND SYSTEMS – LINEAR GRATE TYPE



MODULAR WETLAND SYSTEMS – LINEAR GRATE TYPE



MODULAR WETLAND SYSTEMS – LINEAR UG CURB TYPE





BUILDING AND SAFETY
REVIEWED FOR COMPLIANCE WITH TITLE 24 DISABLED ACCESS AND ACCESSIBILITY ONLY
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CONSTRUCTION RECORD	DATE	BY	REVISIONS	ACC'D	DATE	BENCH MARK	SCALE	SEAL: PROGRESS PRINT	Designed By	Drawn By	Checked By	RECOMMENDED BY: _____ DATE: _____	CITY OF TEMECULA DEPARTMENT OF PUBLIC WORKS	Drawing No.
Contractor _____						BM="CHRIS" STAMPED ON 3 & 1/2" BRASS DISK K-62 1927 LOCATED 2.0 MILES SOUTHEAST ON TEMECULA PARKWAY FROM MAIN STREET, 1.8 MILES SOUTH ON RAINBOW CANYON ROAD.	HORIZONTAL	THIS DOCUMENT MAY NOT BE USED FOR CONSTRUCTION, RELEASED UNDER AUTHORITY OF: MARGIE M DE LAURELL, P.E. CALIFORNIA P.E. #C-59448	SEL		6/28/11	ACCEPTED BY: _____ DATE: _____ GREG BUTLER DIRECTOR OF PUBLIC WORKS/CITY ENGINEER R.C.E. NO. 47109	TEMECULA VALLEY HOSPITAL WQMP & STORM DRAIN DETAILS PM 32468/PA10-0194	WQMP - 6
Inspector _____							VERTICAL							
Date Completed _____						ELEVATION: 1303.491' DATE: 8-01-02								Sheet 6 of 7

Client:
UHS
Universal Health Services, Inc
367 South Gulph Road
King of Prussia, PA 19406
T 610 768 3300

Architect of Record:
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1010 Second Ave, Studio 810,
West Tower
San Diego, CA 92101
T 619 744 4077

Civil Engineer:
URS
1950 Stemmons Freeway,
Suite 6060
Dallas, Texas 75207
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(214) 741-9413 Fax

Design/Build Partners:
Turner Construction Company
DPR Construction Inc.

Temecula Valley Hospital
Temecula, CA.

Agency Approval
REVIEWED IN ACCORDANCE WITH THE REQUIREMENTS OF T24. LCE APPROVED
Office of Statewide Health Planning & Development Facilities Development Division
OSHPD NO.

HMC Project No. 2308006

PLANS ISSUED FOR REVIEW ONLY

REVISION

LD10-019GR

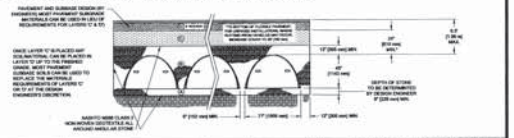
REVISED BID DOCUMENTS 06-28-2011

Drawing: P:\CIVIL\2051142.00 - temecula\Drawings\2264 - Storm Details.dwg 28 Jun 30, 2011 - 4:32pm by mmyle_da_bomb
Xrefs: ...\Blocks\...

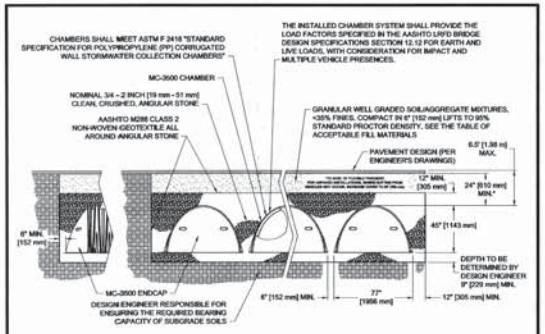
ACCEPTABLE FILL MATERIALS: STORMTECH MC-3500 CHAMBER SYSTEMS

MATERIAL LOCATION	DESCRIPTION	AASHTO M43 DESIGNATION*	COMPACTION/DENSITY REQUIREMENT
⑤ FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
④ FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE (B) LAYER TO 24" (610 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THIS LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, < 35% FINES. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTION AFTER 24" (610 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (152 mm) MAX LIFTS TO A MIN. 95% STANDARD PROCTOR DENSITY.
③ EMBEDMENT STONE SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE, NOMINAL SIZE DISTRIBUTION BETWEEN 3/4 - 2 INCH (19 - 51 mm)	3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
② FOUNDATION STONE BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE, NOMINAL SIZE DISTRIBUTION BETWEEN 3/4 - 2 INCH (19 - 51 mm)	3, 35, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A MIN. STANDARD PROCTOR DENSITY 1

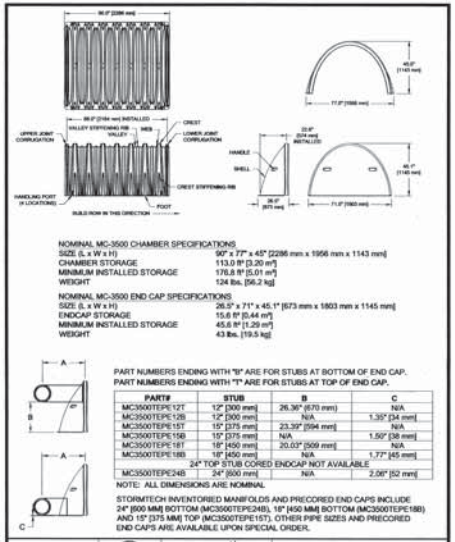
PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #1 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. AS AN ALTERNATE TO PROCTOR TESTING AND FIELD DENSITY MEASUREMENTS ON OPEN GRADED STONE, STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'F' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (229 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH AN APPROPRIATE COMPACTOR.



STORMTECH MC-3500 ACCEPTABLE FILL



MC-3500 TYPICAL CROSS-SECTION



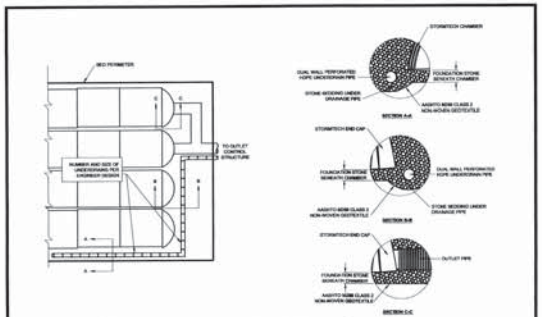
PART NUMBERS ENDING WITH "B" ARE FOR STUBS AT BOTTOM OF END CAP.
PART NUMBERS ENDING WITH "T" ARE FOR STUBS AT TOP OF END CAP.

PART#	STUB	B	C
MC3500TEPE12T	12" [300 mm]	26.36" (670 mm)	N/A
MC3500TEPE12B	12" [300 mm]	N/A	1.39" [34 mm]
MC3500TEPE15T	15" [375 mm]	23.39" [594 mm]	N/A
MC3500TEPE15B	15" [375 mm]	N/A	1.50" [38 mm]
MC3500TEPE18T	18" [450 mm]	20.03" [509 mm]	N/A
MC3500TEPE18B	18" [450 mm]	N/A	1.77" [45 mm]
	24" TOP STUB CORED ENDCAP NOT AVAILABLE		
MC3500TEPE24B	24" [600 mm]	N/A	2.06" [52 mm]

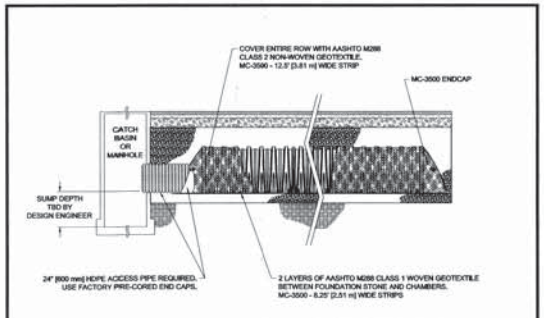
NOTE: ALL DIMENSIONS ARE NOMINAL

STORMTECH INVENTORIED MANIFOLDS AND PRECORED END CAPS INCLUDE 24" [600 MM] BOTTOM (MC3500TEPE24B), 18" [450 MM] BOTTOM (MC3500TEPE18B) AND 15" [375 MM] TOP (MC3500TEPE15T). OTHER PIPE SIZES AND PRECORED END CAPS ARE AVAILABLE UPON SPECIAL ORDER.

MC-3500 TECHNICAL SPECIFICATIONS



MC-3500 OUTLET/ UNDERDRAIN DETAIL



NOTE: FOR MANY APPLICATIONS, THE NON-WOVEN GEOTEXTILE OVER THE MC-3500 CHAMBERS CAN BE ELIMINATED OR SUBSTITUTED WITH THE AASHTO CLASS 1 WOVEN GEOTEXTILE. CONTACT YOUR STORMTECH REPRESENTATIVE FOR ASSISTANCE.

MC-3500 ISOLATOR™ ROW PROFILE

NOTE:
FOR REFERENCE ONLY.
NOT FOR CONSTRUCTION



BUILDING AND SAFETY
REVIEWED FOR COMPLIANCE WITH TITLE 24 DISABLED ACCESS AND ACCESSIBILITY ONLY
APPROVED BY: _____ NAME _____ DATE

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Office of Statewide Health Planning & Development Facilities Development Division
OSHPD NO.

HMC Project No. 2308006

PLANS ISSUED FOR REVIEW ONLY

REVISION

LD10-019GR

REVISED BID DOCUMENTS 06-28-2011

CONSTRUCTION RECORD	DATE	BY	REVISIONS	ACC'D	DATE	BENCH MARK	SCALE
Contractor _____						BM-CSS03 STAMPED ON 3 & 1/2" BRASS DISK K-62 1927 LOCATED 3.0 MILES SOUTHEAST ON TEMECULA PARKWAY FROM MAIN STREET, 1.8 MILES SOUTH ON RAINBOW CANYON ROAD.	HORIZONTAL
Inspector _____							
Date Completed _____						ELEVATION: 1302.491' DATE: 9-01-82	VERTICAL

SEAL: PROGRESS PRINT
THIS DOCUMENT MAY NOT BE USED FOR CONSTRUCTION. RELEASED UNDER AUTHORITY OF: MARGIE M DE LAUREL, P.E. CALIFORNIA P.E. #C-59448

Designed By	Drawn By	Checked By
SEL		MDL
		6/28/11

RECOMMENDED BY: _____ DATE: _____
ACCEPTED BY: _____ DATE: _____
GREG BUTLER
DIRECTOR OF PUBLIC WORKS/CITY ENGINEER
R.C.E. NO. 47109

CITY OF TEMECULA DEPARTMENT OF PUBLIC WORKS

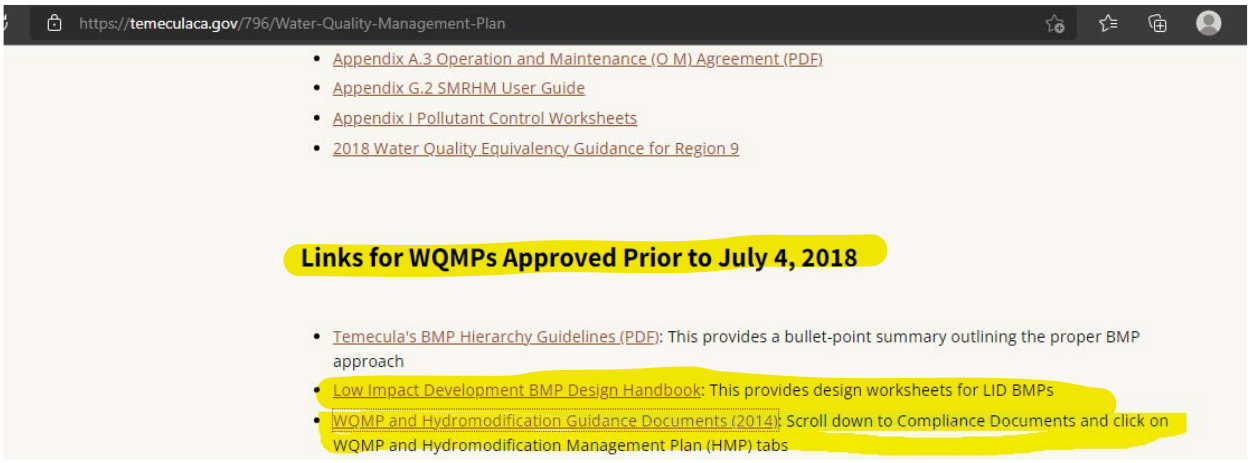
TEMECULA VALLEY HOSPITAL
STORM DRAIN DETAILS
PM 32468/PA10-0194

Drawing No. WQMP - 7
Sheet 7 of 7

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ATTACHMENT 4
SANTA MARGARITA REGION HYDROMODIFICATION PLAN IN COMPLIANCE WITH ORDER NO. R9-2010-0016

https://temeculaca.gov/796/Water-Quality-Management-Plan



May 2014

Santa Margarita Region Hydromodification Management Plan

In compliance with Order No. R9-2010-0016, this HMP has been developed by the Riverside County Copermittees

3.2 HMP Exemptions

PDPs may be exempt from HMP Performance Standards based on specific channel or watershed conditions or already approved design guidelines.

3.2.i Concrete-Lined & Artificially Hardened Channel Exempt Areas

The channel exempt areas include those areas that discharge to concrete-lined or artificially hardened channels sections. This includes, as identified in Section F.1.h.(4) of the Permit:

- PDPs that discharge runoff into underground storm drains discharging directly to water storage reservoirs and lakes; or
- PDPs that discharge runoff into MS4 facilities whose bed and bank are concrete lined all the way from the point of discharge to water reservoirs and lakes; or
- PDPs that discharge runoff into other areas identified in the HMP as acceptable to not need to meet the requirements of Section F.1.h by the San Diego Water Board Executive Officer.

Concrete-lined or artificially hardened MS4 facilities that are identified as Engineered, Fully Hardened and Maintained (EFHM) in the SMR Hydromodification Susceptibility Study (see APPENDIX D) are exempt from the HMP Performance Standards. The exemption does not apply to PDPs that discharge to Engineered, Partially Hardened and Maintained (EPHM) and Engineered, Earthen and Maintained (EEM) channels. To confirm the exemption, the succession of existing concrete-lined or artificially hardened MS4 facilities must be continuous from the discharge point to an exempt receiving water, such as a reservoir or a large river. PDPs may evaluate local drainage systems that were not included in the SMR Hydromodification Susceptibility Report for exemption applicability. The User must ensure that the MS4 facilities have been designed to convey the 10-year ultimate condition peak discharge.

The 10-year flow should be calculated based upon the 10-year high confidence synthetic rainfall hydrograph, as detailed in the 1978 RCFCWCD Hydrology Manual. As an alternative, the 10-year ultimate peak discharge may also be determined based on continuous simulation and the results of the SMRHM.

Pursuant to 2010 SMR MS4 Permit Provision F.1.h(1)(a), the SMR was screened to identify and classify susceptible and non-susceptible channels. The screening analysis consisted of verifying the type of material and susceptibility of the GIS-delineated District drainage facilities using as-built plans and aerial photography. For questionable segments, the analysis was complemented by a field visit. Findings are summarized in the Hydromodification Susceptibility Documentation Report and Mapping (see APPENDIX D).

Major MS4 facilities that are exempt from HMP Performance Standards are presented in **Table 3** for reference only. The PDP may use the exemption maps, including Figures 6 through 11 of

ATTACHMENT 5
APPROVED SWQMP REPORT PAGE WITH HYDROMOFICATION EXEMPTION

IV. HYDROLOGIC CONDITIONS OF CONCERN

Impacts to the hydrologic regime resulting from the Project may include increased runoff volume and velocity; reduced infiltration; increased flow frequency, duration, and peaks; faster time to reach peak flow; and water quality degradation. Under certain circumstances, changes could also result in the reduction in the amount of available sediment for transport; storm flows could fill this sediment-carrying capacity by eroding the downstream channel. These changes have the potential to permanently impact downstream channels and habitat integrity. A change to the hydrologic regime of a Project's site would be considered a hydrologic condition of concern if the change would have a significant impact on downstream erosion compared to the pre-development condition or have significant impacts on stream habitat, alone or as part of a cumulative impact from development in the watershed.

This project-specific WQMP must address the issue of Hydrologic Conditions of Concern unless one of the following conditions is met:

- Condition A: Runoff from the Project is discharged directly to a publicly-owned, operated and maintained MS4; the discharge is in full compliance with Co-Permittee requirements for connections and discharges to the MS4 (including both quality and quantity requirements); the discharge would not significantly impact stream habitat in proximate Receiving Waters; and the discharge is authorized by the Co-Permittee.
- Condition B: The project disturbs less than 1 acre. The disturbed area calculation should include all disturbances associated with larger plans of development.
- Condition C: The project's runoff flow rate, volume, velocity and duration for the post-development condition do not exceed the pre-development condition for the 2-year, 24-hour and 10-year 24-hour rainfall events. This condition can be achieved by minimizing impervious area on a site and incorporating other site-design concepts that mimic pre-development conditions. This condition must be substantiated by hydrologic modeling methods acceptable to the Co-Permittee.

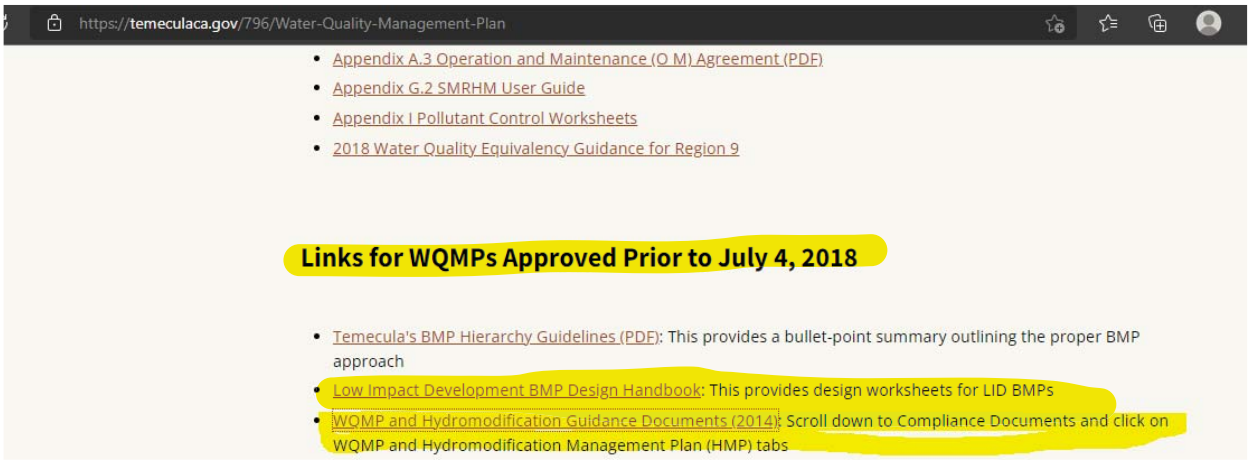
Condition A is applicable to this Project. A drainage report[2] was prepared for the project and was submitted to the City as part of the plan submittal process._ The following paragraphs present a summary of findings from the drainage report.

There are three main drainage patterns within the project site—eastern, western and offsite. Approximately two-thirds of the site slopes generally to the south and east, which will be conveyed to the box culvert in the southeast corner of the site. Immediately upstream of this box culvert is an on-site drainage channel maintained by the Riverside County Flood Control & Water Conservation District (RCFC&WCD); none of the site drainage will be collected in the drainage channel. The remaining one-third of the site slopes generally to the north and west to an existing drainage culvert adjacent to the northwest corner of the site.

[2] URS Corporation. 2010. Drainage Study Hydrology / Hydraulic Report Temecula Medical Center. December 2007, Revised July 2008, Revised April 2010, Revised December 2010.

ATTACHMENT 6
DESIGN HANDBOOK FOR SANTA MARGARITA

https://temeculaca.gov/796/Water-Quality-Management-Plan



Riverside County

Santa Margarita River Watershed Region

Design Handbook

for

Low Impact Development

Best Management Practices

Prepared by:

Revised June 2018

Riverside County Flood Control and Water Conservation District

1995 Market Street

Riverside, CA 92501

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APPENDICES

Appendix A: Infiltration Testing Guidelines
Appendix B: Underdrain Guidelines
Appendix C: Basin Guidelines
Appendix D: Pollutant Removal Effectiveness Table
Appendix E: Calculation Worksheets for V_{BMP} and Q_{BMP}

ATTACHMENT 7
ULTIMATE CONDITION AREAS

Additional Permits or Approvals required for the Project:

AGENCY	PERMIT REQUIRED (YES or NO)
California Department of Fish and Game, 1601 Streambed Alteration Agreement	NO
Regional Water Quality Control Board, Clean Water Act (CWA) §401 Water Quality Certification	YES
US Army Corps of Engineers, CWA §404 permit	YES
US Fish and Wildlife, Endangered Species Act §7 biological opinion	YES
Other (please list in the space below as required)	
State Water Resources Control Board – Construction General Permit	YES
City of Temecula – Building Permit	YES
City of Temecula – Grading Permit	YES

This WQMP is designed to provide for both the overall build-out and Phase I specific development.

The name of this project is the Temecula Medical Center. The property owner is Universal Health Services and this project-specific Water Quality Management Plan has been prepared by URS Corporation. The project site is approximately 35.8 acres at address 31700 Temecula Parkway in the City of Temecula, Riverside County, California along the north side of Temecula Parkway, south of DePortola Road, east of Dona Lynora Road and approximately 700 feet west of Margarita Road. At build-out, the project will include a 320-bed Hospital Building, two Medical Office Buildings, a Cancer Treatment Center, a Fitness Center and a helipad. Related appurtenant structures include support mechanical facilities (emergency generators, transformers, fuel tank, bulk oxygen storage tank) and loading dock.

Site information includes:

Overall Acreage: 1,559,448 sq. ft SHEET FROM APPROVED WQMP

Total building: 566,160 sq. ft

Total landscaping: 512,734 sq, ft

Total hardscape: 33,475 sq ft

Total parking/driveways: 467,968 sq ft

Appendix A of this project-specific WQMP includes a complete copy of the final Conditions of Approval.

Location of New Buildings & Proposed Activities

The Hospital Building will face Temecula Parkway and be situated just east of the site center. The two Medical Office Buildings will be to the west of the Hospital Building, the Cancer Treatment Center will be to the east, and the Fitness Center will be to the north. The helipad is

LEGEND

IMPERVIOUS AT ULTIMATE CONDITION

AREAS FOR ULTIMATE CONDITION:

IMPERVIOUS = 1,020,439.4345
PERVIOUS = 541,179.3214 SF

TOTAL AREA = 1,561,618.7559 SF VIA BD BOUND

34.66% PERVIOUS
65.34% IMPERVIOUS

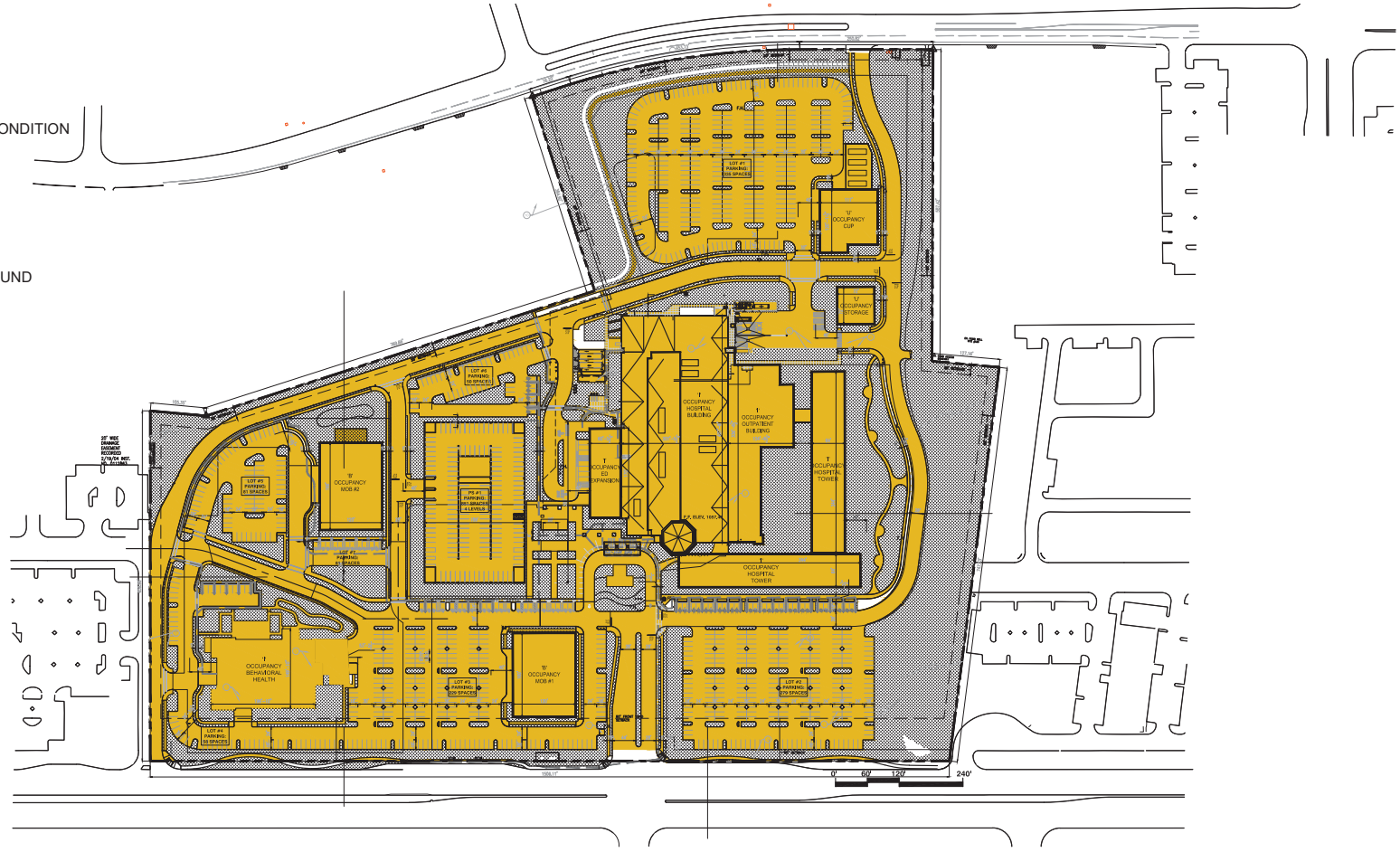
PER PREVIOUSLY APPROVED WQMP:
IMPERVIOUS = 1,067,603 SF

PERVIOUS = 512,734 SF

TOTAL AREA = 1,559,448 SF

PAGE 4 WQMP REPORT-JUNE 2011

32.88% PERVIOUS
67.12% IMPERVIOUS



SCALE: 1"=100'

0 100 200 300 400

ULTIMATE IMPERVIOUS AREAS FOR WQMP

Applicant's Certification

Project Name: Temecula Valley Hospital
Permit Number:

APPLICANT'S CERTIFICATION

I have read and understand that the City of Temecula has adopted minimum requirements for managing urban runoff, including stormwater, from land development activities, as described in the BMP Design Manual. I certify that this WQMP has been completed to the best of my ability and accurately reflects the project being proposed and the applicable BMPs proposed to minimize the potentially negative impacts of this project's land development activities on water quality. I understand and acknowledge that the plan check review of this WQMP by City staff is confined to a review and does not relieve me, as the Applicant, of my responsibilities for project design.

I hereby declare that the design is consistent with the requirements of the City of Temecula BMP Design Manual, which is a design manual for compliance with local City of Temecula Stormwater and Urban Runoff Management and Discharge Controls Ordinance (Chapter 8.28 et seq.) and regional MS4 Permit (California Regional Water Quality Control Board San Diego Region Order No. R9-2013-0001 as amended by R9-2015-0001 and R9-2015-0100) requirements for stormwater management; as well as the requirements of the City of Temecula Engineering and Construction Manual (Chapter 18) and the City of Temecula Erosion and Sediment Control Ordinance (Chapter 18.18 et seq.).

Applicant's Signature Date:

Print Name

Company

STOP! Before continuing this form review Chapter 1.3 of the BMP Design Manual. If the project type is listed in Table 1-2, permanent stormwater requirements do not apply to your project. Write your exempt project category in the space provided below and skip to Step 3. Do not complete Steps 1, 2, or 4 of this WQMP.

Exempt Project category

Step 1: Source Control BMP Checklist

Source Control BMPs			
All development projects must implement source control BMPs 4.2.1 through 4.2.6 where applicable and feasible. See Chapter 4.2 and Appendix E of the City BMP Design Manual for information to implement source control BMPs shown in this checklist. Answer each category below pursuant to the following: • "Yes" means the project will implement the source control BMP as described in Chapter 4.2 and/or Appendix E of the City BMP Design Manual. Discussion / justification must be provided and **show locations on the project plans**. Select applicable Source Controls in the Source Control BMP summary on the following page. • "No" means the BMP is applicable to the project but it is not feasible to implement. Discussion / justification must be provided. • "N/A" means the BMP is not applicable at the project site because the project does not include the feature that is addressed by the BMP (e.g., the project has no outdoor materials storage areas). Discussion / justification must be provided.			
Source Control Requirement	**Applied?**		
4.2.1 Prevention of Illicit Discharges into the MS4	☑Yes	☐No	☐N/A
Discussion / justification:			
4.2.2 Storm Drain Stenciling or Signage	☑Yes	☐No	☐N/A
Discussion / justification:			
4.2.3 Protect Outdoor Materials Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☑Yes	☐No	☐N/A
Discussion / justification:			
4.2.4 Protect Materials Stored in Outdoor Work Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☑Yes	☐No	☐N/A
Discussion / justification:			
4.2.5 Protect Trash Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☑Yes	☐No	☐N/A
Discussion / justification:			
4.2.6 Additional BMPs Based on Potential Sources of Runoff Pollutants	☐Yes	☐No	☑N/A
Discussion / justification. Clearly identify which sources of runoff pollutants are discussed:			

Source Control BMP Summary			
Select all source control BMPs identified for your project in sections 4.2.1 through 4.2.6 above in the coulumn on the left below. Then select "yes" if the BMP has been implemented **and shown on the project plans**, "No" if the BMP has not been implemented, or "N/A" if the BMP is not applicable to your project.			
☐ SC-A. On-site storm drain inlets	☑Yes	☐No	☐N/A
☐ SC-B. Interior floor drains and elevator shaft sump pumps	☑Yes	☐No	☐N/A
☐ SC-C. Interior parking garages	☑Yes	☐No	☐N/A
☐ SC-D1. Need for future indoor & structural pest control	☑Yes	☐No	☐N/A
☐ SC-D2. Landscape/outdoor pesticide use	☑Yes	☐No	☐N/A
☐ SC-E. Pools, spas, ponds, fountains, and other water features	☐Yes	☐No	☑N/A
☐ SC-F. Food service	☑Yes	☐No	☐N/A
☐ SC-G. Refuse areas	☑Yes	☐No	☐N/A
☐ SC-H. Industrial processes	☐Yes	☐No	☑N/A
☐ SC-I. Outdoor storage of equipment or materials	☐Yes	☐No	☑N/A
☐ SC-J. Vehicle and equipment cleaning	☐Yes	☐No	☑N/A
☐ SC-K. Vehicle/equipment repair and maintenance	☐Yes	☐No	☑N/A
☐ SC-L. Fuel dispensing areas	☐Yes	☐No	☑N/A
☐ SC-M. Loading docks	☐Yes	☐No	☑N/A
☐ SC-N. Fire sprinkler test water	☐Yes	☐No	☑N/A
☐ SC-O. Miscellaneous drain or wash water	☐Yes	☐No	☑N/A
☐ SC-P. Plazas, sidewalks, and parking lots	☑Yes	☐No	☐N/A
☐ SC-Q. Large trash generating facilities	☐Yes	☐No	☑N/A
☐ SC-R. Animal facilities	☐Yes	☐No	☑N/A
☐ SC-S. Plant nurseries and garden centers	☐Yes	☐No	☑N/A
☐ SC-T. Automotive facilities	☐Yes	☐No	☑N/A

Note: Show all source control measures applied above on the plan sheets.

Step 2: Site Design BMP Checklist

Site Design BMPs
All development projects must implement site design BMPs SD-A through SD-H where applicable and feasible. See Chapter 4.3 and Appendix E of the City BMP Design Manual for information to implement site design BMPs shown in this checklist. Answer each category below pursuant to the following: • "Yes" means the project will implement the site design BMP as described in Chapter 4.3 and/or Appendix E of the City BMP Design Manual. Discussion / justification must be provided and **show locations on the project plans**. • "No" means the BMP is applicable to the project but it is not feasible to implement. Discussion / justification must be provided. • "N/A" means the BMP is not applicable at the project site because the project does not include the feature that is addressed by the BMP (e.g., the project site has no existing natural areas to conserve). Discussion / justification must be provided.

Site Design Requirement	Applied?		
4.3.1 Maintain Natural Drainage Pathways and Hydrologic Features	☐Yes	☐No	☑N/A
Discussion / justification:			
4.3.2 Conserve Natural Areas, Soils, and Vegetation	☑Yes	☐No	☐N/A
Discussion / justification:			
4.3.3 Minimize Impervious Area	☑Yes	☐No	☐N/A
Discussion / justification:			
4.3.4 Minimize Soil Compaction	☑Yes	☐No	☐N/A
Discussion / justification:			
4.3.5 Impervious Area Dispersion	☑Yes	☐No	☐N/A
Discussion / justification:			
4.3.6 Runoff Collection	☑Yes	☐No	☐N/A
Discussion / justification:			
4.3.7 Landscaping with Native or Drought Tolerant Species	☑Yes	☐No	☐N/A
Discussion / justification:			
4.3.8 Harvesting and Using Precipitation	☑Yes	☐No	☐N/A
Discussion / justification:			

Step 3: Construction Stormwater BMP Checklist

Minimum Required Standard Construction Stormwater BMPs		
If you answer "Yes" to any of the questions below, your project is subject to Table 1 on the following page (Minimum Required Standard Construction Stormwater BMPs). As noted in Table 1, please select at least the minimum number of required BMPs[1], or as many as are feasible for your project. If no BMP is selected, an explanation must be given in the box provided. The following questions are intended to aid in determining construction BMP requirements for your project. **Note: All selected BMPs below must be included on the BMP plan incorporated into the construction plan sets.**		
1. Will there be soil disturbing activities that will result in exposed soil areas? (This includes minor grading and trenching.) **Reference Table 1 Items A, B, D, and E** Note: Soil disturbances NOT considered significant include, but are not limited to, change in use, mechanical/electrical/plumbing activities, signs, temporary trailers, interior remodeling, and minor tenant improvement.	☑Yes	☐No
2. Will there be asphalt paving, including patching? **Reference Table 1 Items D and F**	☑Yes	☐No
3. Will there be slurries from mortar mixing, coring, or concrete saw cutting? **Reference Table 1 Items D and F**	☑Yes	☐No
4. Will there be solid wastes from concrete demolition and removal, wall construction, or form work? **Reference Table 1 Items D and F**	☑Yes	☐No
5. Will there be stockpiling (soil, compost, asphalt, concrete, solid waste) for over 24 hours? **Reference Table 1 Items D and F**	☑Yes	☐No
6. Will there be dewatering operations? **Reference Table 1 Items C and D**	☑Yes	☐No
7. Will there be temporary on-site storage of construction materials, including mortar mix, raw landscaping and soil stabilization materials, treated lumber, rebar, and plated metal fencing materials? **Reference Table 1 Items E and F**	☑Yes	☐No
8. Will trash or solid waste product be generated from this project? **Reference Table 1 Item F**	☑Yes	☐No
9. Will construction equipment be stored on site (e.g.: fuels, oils, trucks, etc.?) **Reference Table 1 Item F**	☑Yes	☐No
10. Will Portable Sanitary Services ("Porta-potty") be used on the site? **Reference Table 1 Item F**	☑Yes	☐No

[1] Minimum required BMPs are those necessary to comply with the City of Temecula Erosion and Sediment Control Ordinance (Chapter 18.18 et seq.) and the City of Temecula Engineering and Construction Manual (Chapter 18).

Table 1. Construction Stormwater BMP Checklist

Minimum Required Best Management Practices (BMPs)	CALTRANS SW Handbook[2] Detail	✔ BMP Selected	Reference sheet No.'s where each selected BMP is shown on the plans. If no BMP is selected, an explanation must be provided.
A. Select Erosion Control Method for Disturbed Slopes (choose at least one for the appropriate season)			
Vegetation Stabilization Planting[3] (Summer)	SS-2, SS-4	☑	
Hydraulic Stabilization Hydroseeding[2] (Summer)	SS-4	☐	
Bonded Fiber Matrix or Stabilized Fiber Matrix[4] (Winter)	SS-3	☑	
Physical Stabilization Erosion Control Blanket[3] (Winter)	SS-7	☐	
B. Select erosion control method for disturbed flat areas (slope < 5%) (choose at least one)			
Will use erosion control measures from Item A on flat areas also	SS-3, 4, 7	☐	
Sediment Desilting Basin (must treat all site runoff)	SC-2	☐	
Mulch, straw, wood chips, soil application	SS-6, SS-8	☑	

2 State of California Department of Transportation (Caltrans). 2003. Storm Water Quality Handbooks, Construction Site Best Management Practices (BMPs) Manual. March. Available online at: http://www.dot.ca.gov/hq/construc/stormwater/manuals.htm.

3 If Vegetation Stabilization (Planting or Hydroseeding) is proposed for erosion control it may be installed between May 1st and August 15th. Slope irrigation is in place and needs to be operable for slopes >3 feet. Vegetation must be watered and established prior to October 1st. The owner must implement a contingency physical BMP by August 15th if vegetation establishment does not occur by that date. If landscaping is proposed, erosion control measures must also be used while landscaping is being established. Established vegetation must have a subsurface mat of intertwined mature roots with a uniform vegetative coverage of 70 percent of the natural vegetative coverage or more on all disturbed areas.

4 All slopes over three feet must have established vegetative cover prior to final permit approval.

Table 1. Construction Stormwater BMP Checklist (continued)

Minimum Required Best Management Practices (BMPs)	CALTRANS SW Handbook Detail	✔ BMP Selected	Reference sheet No.'s where each selected BMP is shown on the plans. If no BMP is selected, an explanation must be provided.
C. If runoff or dewatering operation is concentrated, velocity must be controlled using an energy dissipater			
Energy Dissipater Outlet Protection[5]	SS-10	☑	
D. Select sediment control method for all disturbed areas (choose at least one)			
Silt Fence	SC-1	☐	
Fiber Rolls (Straw Wattles)	SC-5	☑	
Gravel & Sand Bags	SC-6 & 8	☐	
Dewatering Filtration	NS-2	☐	
Storm Drain Inlet Protection	SC-10	☐	
Engineered Desilting Basin (sized for 10-year flow)	SC-2	☐	
E. Select method for preventing offsite tracking of sediment (choose at least one)			
Stabilized Construction Entrance	TC-1	☑	
Construction Road Stabilization	TC-2	☐	
Entrance/Exit Tire Wash	TC-3	☐	
Entrance/Exit Inspection & Cleaning Facility	TC-1	☐	
Street Sweeping and Vacuuming	SC-7	☐	
F. Select the general site management BMPs			
F.1 Materials Management			
Material Delivery & Storage	WM-1	☑	
Spill Prevention and Control	WM-4	☐	
F.2 Waste Management[6]			
Waste Management Concrete Waste Management	WM-8	☑	
Solid Waste Management	WM-5	☐	
Sanitary Waste Management	WM-9	☑	
Hazardous Waste Management	WM-6	☐	

Note: The Construction General Permit (Order No. 2009-0009-DWQ) also requires all projects not subject to the BMP Design Manual to comply with runoff reduction requirements through the implementation of post-construction BMPs as described in Section XIII of the order.

[5] Regional Standard Drawing D-40 – Rip Rap Energy Dissipater is also acceptable for velocity reduction.

[6] Not all projects will have every waste identified. The applicant is responsible for identifying wastes that will be onsite and applying the appropriate BMP. For example, if concrete will be used, BMP WM-8 must be selected.

Step 4: Project type determination (Standard or Priority Development Project)

Is the project part of another Priority Development Project (PDP)? ☑ Yes ☐ No If so, Standard and PDP requirements apply. Go to Step 4.1 and select "PDP"			
The project is (select one): ☐ New Development ☑ Redevelopment[7] * SEE NOTE BELOW			
The total proposed newly created or replaced impervious area is: N/A* ft²			
The total existing (pre-project) impervious area is: 1,067,603* ft²			
The total area disturbed by the project is: 1,561,618* ft²			
If the total area disturbed by the project is 1 acre (43,560 sq. ft.) or more OR the project is part of a larger common plan of development disturbing 1 acre or more, a Waste Discharger Identification (WDID) number must be obtained from the State Water Resources Control Board. **WDID:** _____			
Is the project in any of the following categories, (a) through (f)?[8]			
Yes ☐	No ☑	(a)	New development projects that create 10,000 square feet or more of impervious surfaces [9](collectively over the entire project site). This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land.
Yes ☑	No ☐	(b)	Redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface (collectively over the entire project site on an existing site of 10,000 square feet or more of impervious surfaces). This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land.
Yes ☑	No ☐	(c)	New and redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface (collectively over the entire project site), and support one or more of the following uses: (i) Restaurants. This category is defined as a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (Standard Industrial Classification (SIC) code 5812). (ii) Hillside development projects. This category includes development on any natural slope that is twenty-five percent or greater. (iii) Parking lots. This category is defined as a land area or facility for the temporary parking or storage of motor vehicles used personally, for business, or for commerce. (iv) Streets, roads, highways, freeways, and driveways. This category is defined as any paved impervious surface used for the transportation of automobiles, trucks, motorcycles, and other vehicles.

* NOTE: The entire site was rough graded and an Approved Master/Ultimate Condition proposed a certain total impervious area. The previously approved Ultimate Condition Impervious amount is 1,067,603 sf and this addendum proposes and Ultimate impervious condition of 1,020,439sf. Therefore, there is less impervious in this addendum. See Temecula Valley Hospital Master Plan Update Water Quality Overview Memo (2nd page of this Report) for more information.

[7] Redevelopment is defined as: The creation and/or replacement of impervious surface on an already developed site. Examples include the expansion of a building footprint, road widening, the addition to or replacement of a structure, and creation or addition of impervious surfaces. Replacement of impervious surfaces includes any activity that is not part of a routine maintenance activity where impervious material(s) are removed, exposing underlying soil during construction. Redevelopment does not include routine maintenance activities, such as trenching and resurfacing associated with utility work; pavement grinding; resurfacing existing roadways; new sidewalks construction; pedestrian ramps; or bike lanes on existing roads; and routine replacement of damaged pavement, such as pothole repair.

[8] Applicants should note that any development project that will create and/or replace 10,000 square feet or more of impervious surface (collectively over the entire project site) is considered a new development.

Project type determination (continued)

Yes ☐	No ☑	(d)	New or redevelopment projects that create and/or replace 2,500 square feet or more of impervious surface (collectively over the entire project site), and discharging directly to an Environmentally Sensitive Area (ESA). "Discharging directly to" includes flow that is conveyed overland a distance of 200 feet or less from the project to the ESA, or conveyed in a pipe or open channel any distance as an isolated flow from the project to the ESA (i.e. not commingled with flows from adjacent lands). *Note: ESAs are areas that include but are not limited to all Clean Water Act Section 303(d) impaired water bodies; areas designated as Areas of Special Biological Significance by the State Water Board and San Diego Water Board; State Water Quality Protected Areas; water bodies designated with the RARE beneficial use by the State Water Board and San Diego Water Board; and any other equivalent environmentally sensitive areas which have been identified by the Copermittees. See BMP Design Manual Chapter 1.4.2 for additional guidance.*
Yes ☐	No ☑	(e)	New development projects, or redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface, that support one or more of the following uses: (i) Automotive repair shops. This category is defined as a facility that is categorized in any one of the following SIC codes: 5013, 5014, 5541, 7532-7534, or 7536-7539. (ii) Retail gasoline outlets (RGOs). This category includes RGOs that meet the following criteria: (a) 5,000 square feet or more or (b) a projected Average Daily Traffic (ADT) of 100 or more vehicles per day.
Yes ☑	No ☐	(f)	New or redevelopment projects that result in the disturbance of one or more acres of land and are expected to generate pollutants post construction. *Note: See BMP Design Manual Chapter 1.4.2 for additional guidance.*

Does the project meet the definition of one or more of the Priority Development Project categories (a) through (f) listed above?

☐ No – the project is not a Priority Development Project (Standard Project).

☑ Yes – the project is a Priority Development Project (PDP).

Further guidance may be found in Chapter 1 and Table 1-2 of the BMP Design Manual.

The following is for **redevelopment PDPs only**:

The area of existing (pre-project) impervious area at the project site is: N/A* ft² (A)

The total proposed newly created or replaced impervious area is N/A* ft² (B)

Percent impervious surface created or replaced (B/A)*100: N/A* %

The percent impervious surface created or replaced is (select one based on the above calculation):

☐ less than or equal to fifty percent (50%) – **only newly created or replaced impervious areas are considered a PDP and subject to stormwater requirements**

OR

☐ greater than fifty percent (50%) – **the entire project site is considered a PDP and subject to stormwater requirements**

* 50% Rule is Non-Applicable for this project. See Temecula Valley Hospital Master Plan Update Water Quality Overview Memo (2nd page of this Report) for more information.

Step 4.1: Water Quality Management Plan requirements

Step	Answer	Progression
Is the project a Standard Project, Priority Development Project (PDP), or exception to PDP definitions? To answer this item, complete Step 4 Project Type Determination Checklist, and see PDP exemption information below. For further guidance, see Chapter 1.4 of the BMP Design Manual *in its entirety*.	☐ Standard Project	Standard Project requirements apply, **STOP, you have satisfied stormwater requirements.**
	☑ PDP	Standard and PDP requirements apply. **Complete Exhibit A "PDP Requirements."** **http://temeculaca.gov/wqmpa2**
	☐ PDP Exemption	**Go to Step 4.2 below.**

Step 4.2: Exemption to PDP definitions

Is the project exempt from PDP definitions based on either of the following:	If so:
☐ Projects that are only new or retrofit paved sidewalks, bicycle lanes, or trails that meet the following criteria: (i) Designed and constructed to direct stormwater runoff to adjacent vegetated areas, or other non-erodible permeable areas; OR (ii) Designed and constructed to be hydraulically disconnected from paved streets or roads [i.e., runoff from the new improvement does not drain directly onto paved streets or roads]; OR (iii) Designed and constructed with permeable pavements or surfaces in accordance with City of Temecula Guidance on Green Infrastructure;	Standard Project requirements apply, AND any additional requirements specific to the type of project. City concurrence with the exemption is required. *Provide discussion and list any additional requirements below in this form.* **STOP, you have satisfied stormwater requirements.**
☐ Projects that are only retrofitting or redeveloping existing paved alleys, streets or roads that are designed and constructed in accordance with the City of Temecula Guidance on Green Infrastructure.	**Complete Exhibit A "PDP Requirements."** **Select Green Streets Exemptions where applicable.**
Discussion / justification, and additional requirements for exceptions to PDP definitions, if applicable:	

Exhibit A
City of Temecula
PRIORITY DEVELOPMENT PROJECT REQUIREMENTS

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Attachments

Attachment 1: Stormwater Pollutant Control BMP Selection
- Attachment 1a: DMA Exhibit
- Attachment 1b: 85th percentile 24-hour Isohyetal Map
- Attachment 1c: Worksheet B.1-1 DCV
- Attachment 1d: Structural Pollutant Control BMP Checklist(s)
- Attachment 1e:
- Attachment 1f:

Attachment 2: Hydromodification Control Measures
- Attachment 2a: Applicability of HMP Requirements
- Attachment 2b: HMP Exhibit(s)
- Attachment 2c: Management of Critical Coarse Sediment Yield Areas
- Attachment 2d: Flow Control Facility Design
- Attachment 2e: Geomorphic Assessment of Receiving Channels (optional)
- Attachment 2f: Vector Control Plan (if applicable)

Attachment 3: Structural BMP Maintenance Plan
- Attachment 3a: Structural BMP Maintenance Thresholds and Actions
- Attachment 3b: Maintenance Agreements / Notifications (when applicable)
- Attachment 3c: Individual Structural BMP DMA Map book

Attachment 4: City of Temecula PDP Structural BMP Verification for DPW Permitted Land Development Projects

Attachment 5: Copy of Plan Sheets Showing Permanent Stormwater BMPs

Attachment 6: Copy of Project's Drainage Report

Attachment 7: Copy of Project's Geotechnical and Groundwater Investigation Report

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Preparer's Certification Page

Project Name: Temecula Valley Hospital
Permit Application Number: _____

PREPARER'S CERTIFICATION

I hereby declare that I am the Engineer in Responsible Charge of design of Stormwater best management practices (BMPs) for this project, and that I have exercised responsible charge over the design of the BMPs as defined in Section 6703 of the Business and Professions Code, and that the design is consistent with the PDP requirements of the City of Temecula BMP Design Manual, which is a design manual for compliance with local City of Temecula Stormwater and Urban Runoff Management and Discharge Controls Ordinance (Chapter 8.28 et seq.) and regional MS4 Permit (California Regional Water Quality Control Board San Diego Region Order No. R9-2013-0001 as amended by R9-2015-0001 and R9-2015-0100) requirements for stormwater management.

I have read and understand that the City of Temecula has adopted minimum requirements for managing urban runoff, including stormwater, from land development activities, as described in the BMP Design Manual. I certify that this PDP WQMP has been completed to the best of my ability and accurately reflects the project being proposed and the applicable BMPs proposed to minimize the potentially negative impacts of this project's land development activities on water quality. I understand and acknowledge that the plan check review of this PDP WQMP by City staff is confined to a review and does not relieve me, as the Engineer in Responsible Charge of design of stormwater BMPs for this project, of my responsibilities for project design.

_____
Engineer of Work's Signature, PE Number & Expiration Date

Robert D. Dentino
Print Name

Excel Engineering (760) 745-8118
Company & Phone No.

May 20,2022
Date

Engineer's Seal:

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Step 1: Site Information Checklist

Step 1.1: Description of Existing Site Condition and Drainage Patterns

Project Watershed (Complete Hydrologic Unit, Area, and Subarea Name with Numeric Identifier; e.g., 902.52 Santa Margarita HU, Pechanga HA, Wolf HSA)	Santa Margarita River (902) With Sub-watershed: Temecula Creek (902.51)

Current Status of the Site (select all that apply):

- ☑ Existing development
- ☑ Previously graded but not built out
- ☐ Demolition completed without new construction
- ☐ Agricultural or other non-impervious use
- ☐ Vacant, undeveloped/natural

Description / Additional Information:

The Project is currently an existing Hospital with one Primary Hospital Building, two parking lots and their driveways, and appurtenant structures that support it such as, emergency generators, transformers, fuel tanks etc. The site also currently includes various infiltration, detention, and cleaning features that serve the hydrology water quality and detention needs of the existing condition. This is a phased project. The areas that were not developed have been landscaped with hydroseed and wildflowers as an interim condition.

Existing Land Cover Includes (select all that apply and provide each area on site):

- ☐ * SEE NOTE BELOW
- ☐

Description / Additional Information:

The Approved WQMP dated June 13, 2011 shows the same area at Ultimate Condition as stated above. Impervious area has not increased nor decreased

* NOTE: The entire site was rough graded and an Approved Master/Ultimate Condition proposed a certain total impervious area. The previously approved Ultimate Condition Impervious amount is 1,067,603 sf and this addendum proposes and Ultimate impervious condition of 1,020,439sf. Therefore, there is less impervious in this addendum. See Temecula Valley Hospital Master Plan Update Water Quality Overview Memo (2nd page of this Report) for more information.

How is stormwater runoff conveyed from the site? At a minimum, this description should answer:
(1) Whether existing drainage conveyance is natural or urban;
(2) Is runoff from offsite conveyed through the site? If yes, describe the offsite drainage areas, design flows, and locations where offsite flows enter the project site, and summarize how such flows are conveyed through the site;
(3) Provide details regarding existing project site drainage conveyance network, including any existing storm drains, concrete channels, swales, detention facilities, stormwater treatment facilities, natural or constructed channels; and
(4) Identify all discharge locations from the existing project site along with a summary of conveyance system size and capacity for each of the discharge locations. Provide summary of the pre-project drainage areas and design flows to each of the existing runoff discharge locations. Reference the Drainage report Attachment for detailed calculations.

Describe existing site drainage patterns:

(1) The existing drainage channel is urban.

(2) Runoff from offsite is conveyed through the site. Northeast of the site a portion including De Portola Road and the above residential drain to an Existing Drainage Channel at POC #2. It enters an existing grated inlet on the intersection Portola Road and Pio Pico. From there, water enters the site via an existing 24” RCP pipe that drains to existing Independent Drainage Channel that ties into POC # 3 on Temecula Parkway. Water from offsite does not surface flow it only pipe flows directly to the channel.

(3) The site currently has two major drainage basins that split the drainage into east and west sides. The eastern runoff currently generated is contained onsite where various curb inlets and grates collect water at low points. From here the water flows via pipes to an existing Interim Detention/Sedimentation Basin that ties into an existing RCB downstream of County Channel.

Most of the western side that is developed flows overland via cub cuts to sand filters and pipes to and the undeveloped interim condition in the westside flow overland to a pipe. Both developed and undeveloped interim condition area on the west side flow to an existing Detention Basin north of the site on Dona Lynora Drive.

(4) The site currently has two major drainage basins that split the drainage into east and west sides. With approximately 30% of the west site draining to a POC #1 northwest to Dona Lynora Drive, north of Ranch Pueblo Road. The east side has approximately 70% of the site draining to a southeast Drainage Channel on Temecula Valley Parkway that is part of the Riverside County Flood Control District labeled as POC #3. There is a total of three drainage outfall POC 1 is for the western side and POC # 2 & 3 are for the eastern side.

Step 1.2: Description of Proposed Site Development and Drainage Patterns

Project Description / Proposed Land Use and/or Activities:

The land use will be Industrial with most of the site impervious at ultimate condition.

This addendum includes an additional 2-tower hospital complex. There are two proposed office buildings that will have office space available to lease by all types of medical service providers. The site also proposed a cancer center, a behavioral health building, and a multi-level parking structure with a helipad. Various other ground-level parking lots are also planned throughout the project.

The addendum proposes to keep the drainage patterns approximately the same with the East and West side of the project draining to their designated POC's.

Proposed Land Cover Includes (select all that apply and provide each area on site):

Existing to Remain
☐ * N/A SEE NOTE
☐

Existing to Be Replaced
☐ * N/A SEE NOTE
☐

Newly Created
☐ * N/A SEE NOTE
☐

Total
☐ * N/A SEE NOTE
☐

* NOTE: The entire site was rough graded and an Approved Master/Ultimate Condition proposed a certain total impervious area. The previously approved Ultimate Condition Impervious amount is 1,067,603 sf and this addendum proposes and Ultimate impervious condition of 1,020,439sf. Therefore, there is less impervious in this addendum. See Temecula Valley Hospital Master Plan Update Water Quality Overview Memo (2nd page of this Report) for more information.

Description / Additional Information:

List/describe proposed impervious features of the project (e.g., buildings, roadways, parking lots, courtyards, athletic courts, other impervious features):
Proposed impervious onsite includes two additional hospital towers, six additional buildings, including a multi-level parking structure. Three new parking lots are proposed as well as existing parking lots being replaced with new configurations. Additional driveways are proposed for the new parking lots.

List/describe proposed pervious features of the project (e.g., landscape areas):
The proposed pervious features onsite include various existing and proposed water quality basins and detention basins, trees included in parking islands and open spaces with drought tolerant vegetation as well. All impervious areas, except for the northern horse trail, the eastern independent channel and existing pervious will be replaced with new landscape such as the trees mentioned previously.

Describe any grading or changes to site topography:
There are no major changes to the site topography. The site was rough graded per PM 32468/PA10-0194. The drainage is still split between the west and east draining to their designated POC's.

Provide details regarding the proposed project site drainage conveyance network, including storm drains, concrete channels, swales, detention facilities, stormwater treatment facilities, natural or constructed channels, and the method for conveying offsite flows through or around the proposed project site. Identify all discharge locations from the proposed project site along with a summary of the conveyance system size and capacity for each of the discharge locations. Provide a summary of pre- and post-project drainage areas and design flows to each of the runoff discharge locations. Reference the drainage study for detailed calculations.

Describe proposed site drainage patterns:

This first phase of this project has already been developed. The main hospital located just east of the site center has been built, as well as a storage building to the northeast of the main hospital. Existing parking lots sit to the north of the storage building, as well as to the west and southwest of the main hospital. The rest of the site consists of graded pads. Phase 1 drainage BMP's include vegetative strips, bioswales, rain gardens and detention ponds. Most of the storm runoff from Phase 1 will flow to the infiltration gallery. During the water quality storm, the runoff will enter the gallery but during larger storms a concrete diversion box will divert flows to a 48" RCP, which ties into the existing 14'x7' RCB downstream of the channel.
The remaining approximately one-third of the site flows westerly either to the Rancho Pueblo/Dona Lynora intersection or to the existing 36" RCP in the northwestern corner of the site.
This site will implement biofiltration basins, vegetated swales, modular wetlands, rain gardens and potentially tree wells if needed in this section of the site. There are areas designated on the site for these BMP's to be installed. All flow from buildings and parking lots will be routed into the BMP's.

Attachment C on the previously approved WQMP has the drainage study with more detailed calculations. See the summary table below for the pre- and post- development flows for the east and west watersheds.

	100-YR STORM EVENT – WEST WATERSHED				
	Pre-Development (TEC Study)	Pre-Development (URS Study)	Post Development (TEC Study)	Updated Post Development (TEC Study)	Ult/Ph 1 Development (URS Study)
Q (cfs)	20.95	21.09	26.10	20.70	28.6/24.8
Velocity (ft/sec)	1.98	2.28	3.48	3.10	2.51/2.80
Area (acre)	11.11	10.55	12.60	10.60	8.78/8.77
Duration (minutes)	20.20	16.59	21.57	22.00	11.22/14.44

	100-YEAR STORM EVENT – EAST WATERSHED			
	Pre-Development (RANPAC)	Pre-Development (URS Study)	Post Development (RANPAC)	Ult/Ph 1 Development (URS Study)
Q (cfs)	60.27	47.93	63.59	53.1/48.2
Velocity (ft/sec)	13.65	4.43	7.77	4.23/3.84
Area (acre)	23.30	24.67	23.80	24.02/23.69
Duration (minutes)	14.14	21.17	20.07	10.15/20.25

Step 1.3: Other Site Requirements and Constraints

When applicable, list other site requirements or constraints that will influence stormwater management design, such as zoning requirements including setbacks and open space, or local codes governing minimum street width, sidewalk construction, allowable pavement types, and drainage requirements.

Optional Additional Information or Continuation of Previous Sections As Needed

This space provided for additional information or continuation of information from previous sections as needed.

Step 2: Strategy for Meeting PDP Performance Requirements

PDPs must implement BMPs to control pollutants in stormwater that may be discharged from a project (see Chapter 5). PDPs subject to hydromodification management requirements must implement flow control BMPs to manage hydromodification (see Chapter 6). Both stormwater pollutant control and flow control can be achieved within the same BMP(s). Projects triggering the 50% rule must address stormwater requirements for the entire site.

Structural BMPs must be verified by the City at the completion of construction. This may include requiring the project owner or project owner's representative and engineer of record to certify construction of the structural BMPs (see Chapter 1.12). Structural BMPs must be maintained into perpetuity, and the City must confirm the maintenance (see Chapter 7).

Provide a narrative description of the general strategy for pollutant control and flow control at the project site in the box below. This information must describe how the steps for selecting and designing stormwater pollutant control BMPs presented in Chapter 5.1 of the BMP Design Manual were followed, and the results (type of BMPs selected). For projects requiring flow control BMPs, indicate whether pollutant control and flow control BMPs are integrated or separate. At the end of this discussion, provide a summary of all the BMPs within the project including the type and number.

Describe the general strategy for BMP implementation at the site.

Phase 1 of the hospital has been built and the rest of the site has been mass graded for future phases. A series of vegetative strips, swales, detention basins, modular wetland systems, and rain gardens were placed for both water quality and detention.

Calculations in this addendum that address the remaining required BMPs follow the same calculations as in Phase 1. Using the Riverside County Manual Worksheets the Vbmp was calculated and the worksheets for each type of BMP were used for the remaining calculations.

After Phase 1, there were five detention basins, five sand filters, one storm chambers system, five modular wetland systems, and four rain gardens that were required for Ultimated Condition and are proposed in this addendum. These are labeled:

Detention Basin A1, A2, B, and E
Sand Filters A1, A2, B, E
Storm Chambers A
Modular Wetland J, K, L, M & N
Rain Garden G, H, I & J

The Detention Basin and Sand Filters are used for pretreatment and detention, the Storm Chambers are used for both treatment and detention as well. The Rain Gardens and Modular Wetlands are only used for water quality.

(Continue on following page as necessary.)

Description of structural BMP strategy continued **(Page reserved for continuation of description of general strategy for structural BMP implementation at the site)**
(Continued from previous page)

ATTACHMENT 1

STORMWATER POLLUTANT CONTROL BMP SELECTION

Indicate which Items are Included behind this cover sheet:

Attachment Sequence	Contents	Checklist
	Special Considerations for Redevelopment Projects (50% Rule) see chapter 1.7 and Step 4 of Appendix A.1.	☐ Less than or equal to fifty percent (50%) ☐ Greater than fifty percent (50%) * N/A
Refer to Figure 5-1: Stormwater Pollutant Control BMP Selection Flow Chart		
Attachment 1a	DMA Exhibit (Required) See DMA Exhibit Checklist on the back of this form. See Chapter 3.3.3 for guidance	☑ Included ☐ Entire project is designed with Self-Mitigating and De-Minimis DMAs. The project is compliant with Pollution Control BMP sizing requirements. **STOP** *
Attachment 1b	Figure B.1-1: 85th Percentile 24-hour Isohyetal Map with project location	☐ Included * N/A
Attachment 1c	Worksheet B.2-1 DCV [1]	☐ Included * N/A BUT CALCULATIONS ARE INCLUDED
Attachment 1d	Applicable Site Design BMP Fact Sheet(s) from Appendix E	☐ Included * N/A ☐ Entire project is designed with Self-Retaining DMAs. The project is compliant with Pollution Control BMP sizing requirements. **STOP** *
Attachment 1e	Structural Pollutant Control BMP Checklist(s)	☐ Included * N/A
Attachment 1f	Is Onsite Alternative Compliance proposed?[2]	☐ No * N/A ☐ Yes - Include WQE worksheets
Attachment 1g	Offsite Alternative Compliance Participation Form - Pollutant Control Refer to Figure 1-3:Pathways to Participating in Offsite Alternative Compliance Program	☐ Full Compliance Onsite ☐ Partial Compliance Onsite with Offsite Alternative Compliance or Full Offsite Alternative Compliance. Document onsite structural BMPs and complete - Pollutant Control Offsite Alternative Compliance Participation Form, and - WQE worksheets * N/A

* If this box is checked, the remainder of Attachment 1 does not need to be filled out.

* NOTE: See Temecula Valley Hospital Master Plan Update Water Quality Overview Memo (2nd page of this Report) for more information.

[1] All stormwater pollutant control worksheets have been automated and are available for download at: https://www.sandiegocounty.gov/content/sdc/dpw/watersheds/DevelopmentandConstruction/BMP_Design_Manual.html

[2] Water Quality Equivalency Guidance and automated worksheets for Region 9: http://www.projectcleanwater.org/water-quality-equivalency-guidance/

OVERVIEW OF EXISTING AND APPROVED ULTIMATE PROPOSED BMPS

To restate, Phase 1 of the hospital has been built and the rest of the site has been mass graded for future phases. As this site was previously Master Planned and developed it is the intent of this new Master Plan to adhere to, as close as possible, that original design intent.

Therefore, with this grandfathering taken into consideration, this addendum proposes the same amount of BMPs from the original approved Ultimate condition.

After Phase 1, there were four detention basins, 4 sand filters, one storm chambers system, five modular wetland systems, and four rain gardens that were required for Ultimated Condition and are proposed in this addendum.These are labeled:

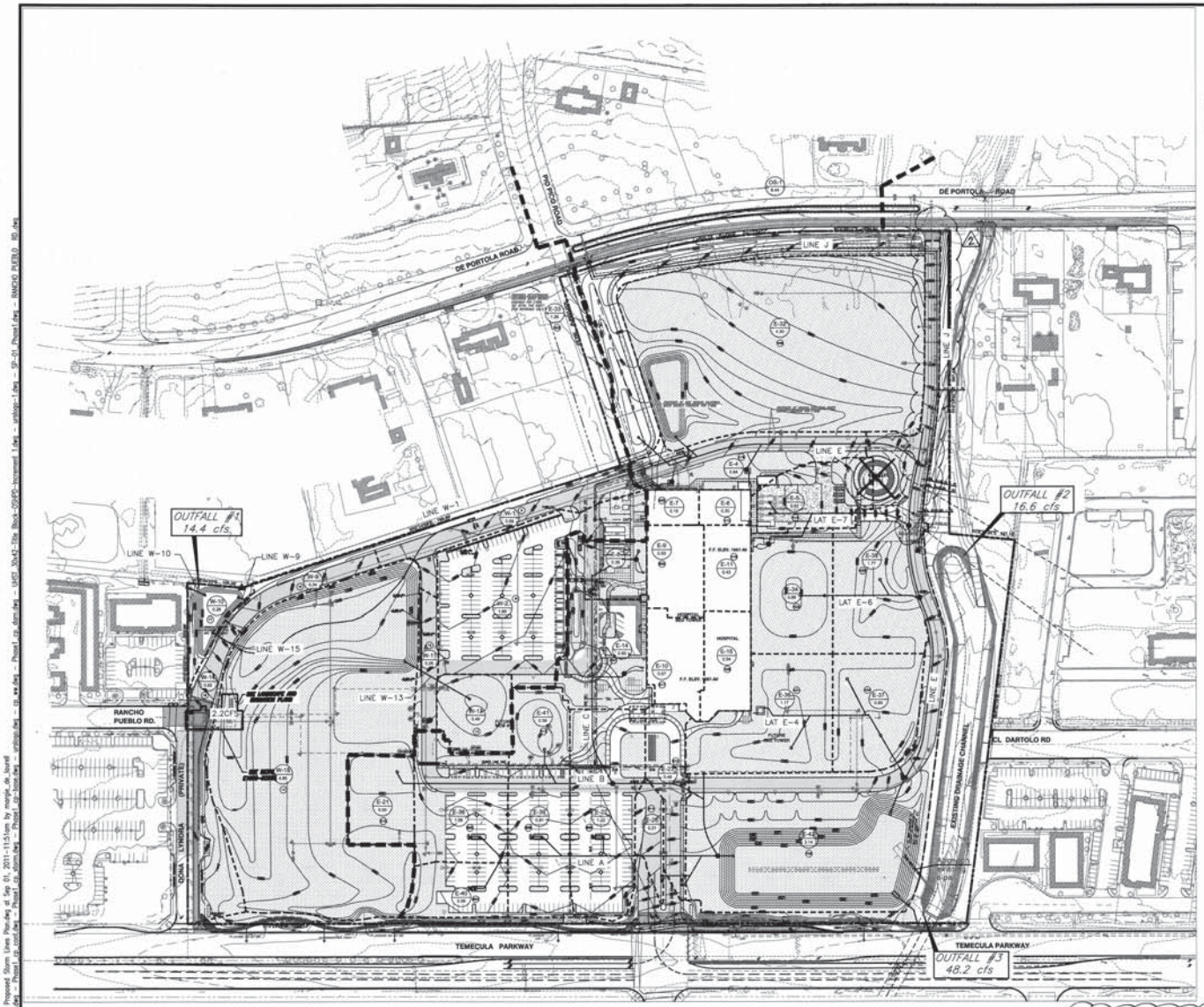
*Detention Basin A1, A2, B, and E
Sand Filters A2, B, E, C
Storm Chambers A
Modular Wetland J, K, L, M & N
Rain Garden G, H, I & J

* Each Detention Basin is paired with a sand filter as follows:
Detention Basin A1+ Existing Sand Filter B (Phase 1- to remain)
Detention Basin A2+ Sand Filter A2
Detention Basin B+ Sand Filter B
Detention Basin E+ Sand Filter E
Existing Basin C+ Sand Filter C
Pairing allows for treatment and detention in each DMA/Basin area.

Furthermore, due to site changes in this addendum, Vegetative Strip E, Rain Garden G and F, Swale A, and MWS E & H have been moved to accommodate the changes. Therefore, they are now labeled as:

Vegetative Strip E1
Rain Garden E1 & F1
Swale A1
MWS E & H (name stayed the same because will keep system)

The following sheets are the Approved Phase 1 and Ultimate Condition areas and BMPs approved for said area.



LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- DRAINAGE AREA DIVIDES
- EAST/WEST DRAINAGE AREAS BOUNDARY
- A1 / 10.33 — DRAINAGE AREA / ACREAGE
- OUTFALL #1 — OUTFALL NUMBER

100 50 0 100 200

LEGEND

- PROPOSED STORM PIPE
- DRAINAGE BOUNDARY LINE
- PROPOSED INLET STRUCTURE
- DETENTION BASIN STAND PIPE
- PROPOSED HEADWALL
- PROPOSED LANDSCAPED AREA
- TO BE CONSTRUCTED WITH STREET IMPROVEMENT PLANS.
- 130 — NODE #

OUTFALL #2 - OFFSITE

DRAINAGE AREA	AREA (ACRES)	C	I_{100} (in/hr)	Q_{100} (cfs)
OS-1	8.44	0.83	4.6	16.6

OUTFALL #1 - WEST

DRAINAGE AREA	AREA (ACRES)	C	I_{100} (in/hr)	Q_{100} (cfs)
W-1	0.68	0.89	3.9	2.4
W-2	1.88	0.89	4.0	6.8
W-9	0.34	0.89	3.6	1.1
W-10	0.28	0.89	3.6	0.9
W-11	0.25	0.89	4.0	0.9
W-13	0.49	0.85	4.0	1.7
W-15	4.85	0.85	2.9	11.8
TOTAL	8.77			

RUNOFF TO RANCHO PUEBLO RD

DRAINAGE AREA	AREA (ACRES)	C	I_{100} (in/hr)	Q_{100} (cfs)
W-14	0.82	0.84	3.1	2.2

OUTFALL #3 - EAST

DRAINAGE AREA	AREA (ACRES)	C	I_{100} (in/hr)	Q_{100} (cfs)
E-4	0.84	0.89	4.0	2.9
E-5	0.62	0.89	4.8	2.7
E-6	0.20	0.89	5.1	0.9
E-7	0.15	0.89	5.1	0.7
E-8	0.38	0.89	4.5	1.5
E-9	0.53	0.89	4.7	2.2
E-10	0.57	0.89	4.5	2.3
E-11	0.43	0.89	4.5	1.7
E-14	0.83	0.89	4.0	2.9
E-15	0.54	0.89	4.1	2.0
E-21	0.50	0.84	3.3	1.4
E-22	1.22	0.89	4.2	4.5
E-23	0.48	0.89	3.9	1.7
E-28	0.21	0.89	4.8	0.9
E-32	4.30	0.83	2.7	9.6
E-33	1.26	0.82	2.4	2.5
E-34	0.86	0.85	3.4	2.4
E-35	1.77	0.83	2.7	4.0
E-36	1.17	0.84	2.8	2.8
E-37	0.85	0.83	3.3	2.4
E-38	1.06	0.89	4.3	4.1
E-39	0.81	0.89	5.1	3.7
E-40	0.58	0.89	4.9	2.5
E-41	0.39	0.84	3.2	1.0
E-42	3.14	0.83	2.5	6.6
TOTAL	23.69			

SHEET FROM APPROVED WQMP REPORT

PHASE 1 = EXISTING FOR THIS ADDENDUM

REVISED ENGINEER OF WORK AS OF 04-23-2012

ROBERT D. DENTINO — DATE 05-02-12

R.C.E. No. 45629 — EXPIRES 12-31-12

ROBERT D. DENTINO No. 45629 Exp. 12-31-13 CIVIL STATE OF CALIFORNIA

Don't Dig...Until You Call U.S.A. Toll Free 1-800-227-2600 for the location of buried utility lines. Don't disrupt vital services. TWO WORKING DAYS BEFORE YOU DIG

BUILDING AND SAFETY

REVIEWED FOR COMPLIANCE WITH TITLE 24 DISABLED ACCESS AND ACCESSIBILITY ONLY

APPROVED BY: _____ NAME _____ DATE 9/7/11

CONSTRUCTION RECORD	DATE	BY	REVISIONS	ACC'D	DATE	BENCH MARK	SCALE	SEAL:	Designed By	Drawn By	Checked By
Contractor			1. REVISE DRIVEWAY & TOTAL NUMBER OF SHEETS AND ADD NEW E.O.N.	AP	9/1/11	BM-CSB-3 STAMPED ON 3 & 1/2" BRASS DISK 4-82 1927 LOCATED 2.0 MILES SOUTHEAST ON TEMECULA PARKWAY FROM MAIN STREET, 1.8 MILES SOUTH ON RANCHO CANYON ROAD.	HORIZONTAL		SEL	MDL	
Inspector			DELETE HELITAB				VERTICAL		Plans Prepared Under Supervision Of		
Date Completed						ELEVATION: 1302.491' DATE: 9-01-82			MARGIE MARIE DE LAURELL	DATE 8/31/11	
									R.C.E. NO. C59448		

RECOMMENDED BY: _____ DATE: 9/6/11

ACCEPTED BY: _____ DATE: 9/8/11

GREG BUTLER
DIRECTOR OF PUBLIC WORKS/CITY ENGINEER
R.C.E. NO. 47109

CITY OF TEMECULA — DEPARTMENT OF PUBLIC WORKS

TEMECULA VALLEY HOSPITAL
PHASE 1 DRAINAGE AREA MAP
PM 32468/PA10-0194

Drawing No. **PG-25** (A) Sheet 25 OF 32

Client:
UHS
Universal Health Services, Inc
367 South Gulph Road
King of Prussia, PA 19406
T 610 768 3300

Architect of Record:
HMC Architects
1010 Second Ave, Studio 810,
West Tower
San Diego, CA 92101
T 619 744 4077

Civil Engineer:
URS
1950 Stemmons Freeway,
Suite 6000
Dallas, Texas 75207
(214) 741-7777
(214) 741-9413 Fax

Design/Build Partners:
Turner Construction Company
DPR Construction Inc.

Temecula Valley Hospital
Temecula, CA.

Agency Approval

REVIEWED IN ACCORDANCE WITH THE REQUIREMENTS OF TD4, CCR APPROVED

Office of Statewide Health Planning & Development Facilities Development Division

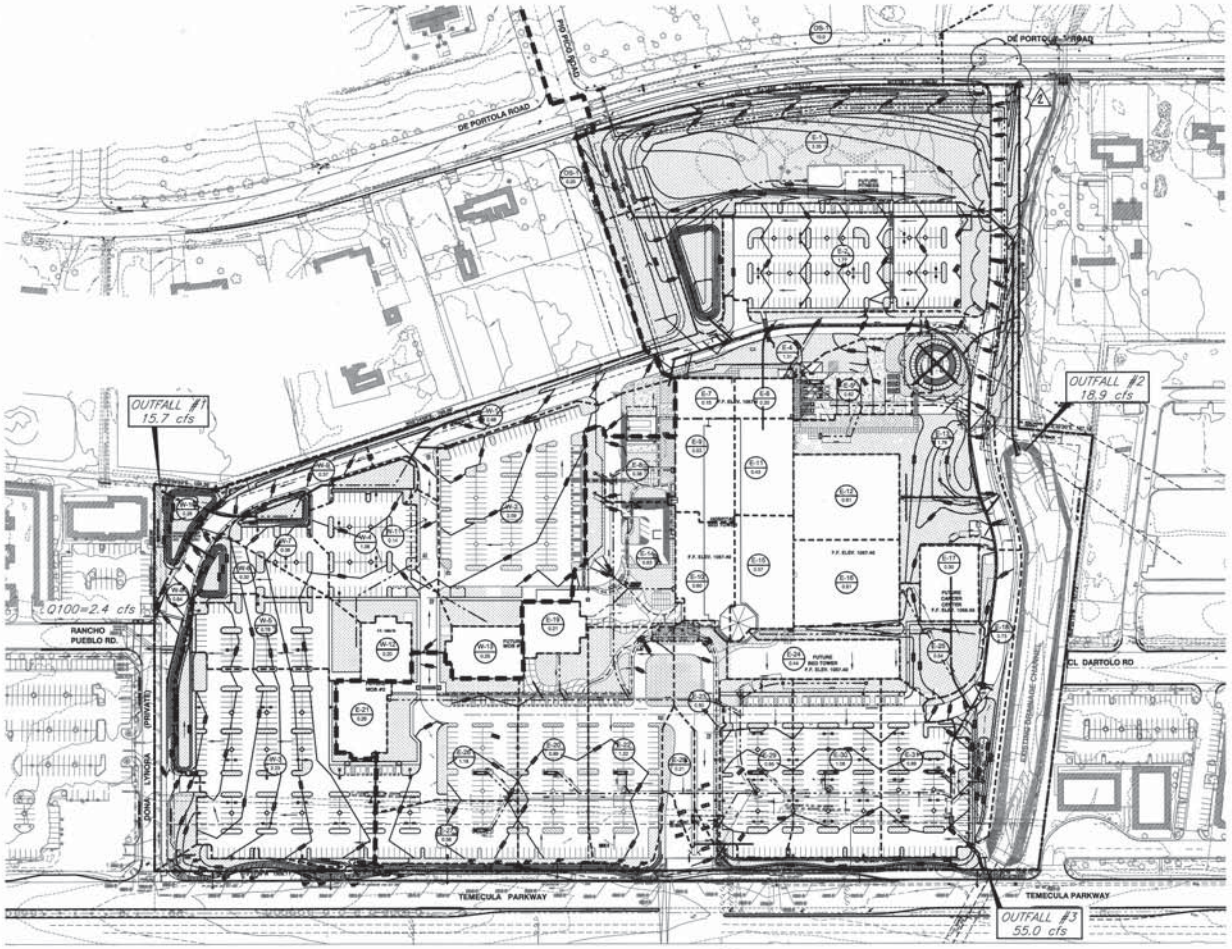
OSHPD NO.

HMC Project No. 2308006

PLANS ISSUED FOR REVIEW ONLY

REVISION

LD12-061GR
LD10-019GR



SHEET FROM APPROVED WQMP REPORT
2010 ULTIMATE/MASTER PLAN

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- DRAINAGE AREA DIVIDES
- EAST/WEST DRAINAGE AREAS BOUNDARY
- A1 (10.33) — DRAINAGE AREA / ACREAGE
- TO BE CONSTRUCTED WITH STREET IMPROVEMENT PLANS.
- OUTFALL #1 — OUTFALL NUMBER
- EXISTING OR PROPOSED LANDSCAPED AREAS

SCALE 1"=100'

OUTFALL #2 - OFFSITE

DRAINAGE AREA	AREA (ACRES)	C	I_{100} (in/hr)	Q_{100} (cfs)
OS-1	10.0	0.83	2.3	18.9

OUTFALL #1 - WEST

DRAINAGE AREA	AREA (ACRES)	C	I_{100} (in/hr)	Q_{100} (cfs)
W-1	0.68	0.89	3.9	2.4
W-2	2.09	0.89	3.8	7.1
W-3	2.23	0.89	3.6	7.1
W-4	1.06	0.89	3.6	3.4
W-5	0.78	0.89	3.6	2.5
W-6	0.32	0.89	3.5	1.0
W-7	0.38	0.89	3.4	1.1
W-8	0.64	0.89	4.2	2.4
W-9	0.37	0.89	3.3	1.1
W-10	0.28	0.89	3.3	0.8
W-11	0.14	0.89	3.5	0.4
W-12	0.20	0.89	4.7	0.8
W-13	0.25	0.89	5.1	1.1
TOTAL	9.42			

OUTFALL #3 - EAST

DRAINAGE AREA	AREA (ACRES)	C	I_{100} (in/hr)	Q_{100} (cfs)
E-1	3.35	0.83	2.7	7.7
E-2	1.77	0.89	4.1	6.5
E-4	1.31	0.89	4.1	4.7
E-5	0.62	0.89	5.1	2.8
E-6	0.20	0.89	4.8	0.9
E-7	0.15	0.89	5.1	0.7
E-8	0.38	0.89	4.5	1.5
E-9	0.53	0.89	4.8	2.3
E-10	0.60	0.89	4.6	2.3
E-11	0.43	0.89	4.5	1.7
E-12	0.61	0.89	4.3	2.3
E-13	1.76	0.89	3.8	5.9
E-14	0.83	0.89	4.0	3.0
E-15	0.57	0.89	4.4	2.2
E-16	0.61	0.89	4.4	2.4
E-17	0.30	0.89	4.7	1.2
E-18	0.73	0.89	3.5	2.3
E-19	0.21	0.89	5.1	1.0
E-20	0.99	0.89	4.6	4.1
E-21	0.26	0.89	4.9	1.1
E-22	1.22	0.89	4.4	4.8
E-23	0.50	0.89	4.0	1.8
E-24	0.44	0.89	4.1	1.6
E-25	0.54	0.89	4.8	2.3
E-26	1.18	0.89	4.4	4.6
E-27	0.58	0.89	4.5	2.3
E-28	0.21	0.89	4.4	0.8
E-29	0.85	0.89	4.5	3.4
E-30	1.06	0.89	4.3	4.1
E-31	0.89	0.89	4.6	3.6
TOTAL	24.02			

REGISTERED PROFESSIONAL ENGINEER ROBERT D. DENTINO No. 45629 Exp. 12-31-12 CIVIL STATE OF CALIFORNIA

REVISED ENGINEER OF WORK AS OF 04-23-2012
Robert D. Dentino
ROBERT D. DENTINO
R.C.E. No. 45629
DATE 05-02-12
EXPIRES 12-31-12

ULTIMATE BUILDOUT
"FOR REFERENCE ONLY"
DO NOT USE FOR CONSTRUCTION

Don't Dig...Until You Call U.S.A. Toll Free 1-800-227-2600
for the location of buried utility lines.
Don't disrupt vital services.
TWO WORKING DAYS BEFORE YOU DIG

BUILDING AND SAFETY
REVIEWED FOR COMPLIANCE WITH TITLE 24 DISABLED ACCESS AND ACCESSIBILITY ONLY
APPROVED BY: _____ NAME _____ DATE

Client:
UHS
Universal Health Services, Inc
367 South Gulph Road
King of Prussia, PA 19406
T 610 768 3300

Architect of Record:
HMC Architects
1010 Second Ave, Studio 810,
West Tower
San Diego, CA 92101
T 619 744 4077

Civil Engineer:
URS
1950 Stemmons Freeway,
Suite 6000
Dallas, Texas 75207
(214) 741-7777
(214) 741-9413 Fax

Design/Build Partners:
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Temecula, CA.

Agency Approval
REVIEWED IN ACCORDANCE WITH THE REQUIREMENTS OF TJA, CCR APPROVED
Office of Statewide Health Planning & Development Facilities Development Division
OSHPD NO.

HMC Project No. 2308006

PLANS ISSUED FOR REVIEW ONLY
REVISION
LD12-061GR
LD10-019GR

CONSTRUCTION RECORD	DATE	BY
Contractor		
Inspector		
Date Completed		

REVISIONS	ACC'D	DATE
1. REVISE DRIVEWAY & TOTAL NUMBER OF SHEETS AND ADD NEW EOW. DELETE HELIPAD	AD	7/8/11

BENCH MARK: BM-CS9A3 STAMPED ON 3 & 1/2" BRASS DISK K-62 1927 LOCATED 2.0 MILES SOUTHEAST ON TEMECULA PARKWAY FROM MAIN STREET, 1.8 MILES SOUTH ON RAINBOW CANYON ROAD. ELEVATION: 1302.491' DATE: 9-01-82

SCALE: HORIZONTAL / VERTICAL

SEAL: REGISTERED PROFESSIONAL ENGINEER MARGIE MARIE DE LAURELL No. C-59448 EXP. 12/31/11 CIVIL STATE OF CALIFORNIA 8-7-11

Designed By	Drawn By	Checked By
SEL		MDL

Plans Prepared Under Supervision Of
MARGIE MARIE DE LAURELL
R.C.E. NO. C59448
DATE 8/31/11

RECOMMENDED BY: _____ DATE: 9/8/11
ACCEPTED BY: _____ DATE: 9/13/11
GREG BUTLER
DIRECTOR OF PUBLIC WORKS/CITY ENGINEER
R.C.E. NO. 47109

CITY OF TEMECULA DEPARTMENT OF PUBLIC WORKS

TEMECULA VALLEY HOSPITAL
ULTIMATE PROPOSED HYDROLOGY
PM 32468/PA10-0194

Drawing No. **PG-26**
Sheet 26 OF 32

Drawing: P:\UWU\2051142.00 - temecula\Drawings\C18 - Overall Proposed Hydrology.dwg at Sep 01, 2011 - 11:51:am by margie_de_laurell
Layout: 18 - 30"x42"(24.0in) - cp-base.dwg - cp-cont.dwg - cp-storm.dwg - ex-utilities.dwg - utilities.dwg - SP-01.dwg - sp-01 Advanced.dwg

UHS Temecula Medical Center

BMP Summary Spreadsheet

Phase 1 PHASE 1 = EXISTING FOR THIS ADDENDUM

SHEET FROM APPROVED WQMP REPORT

Hydrologic Subarea		
Outfall #1 West	Title	BMP
W-1	MWS B	Modular Wetlands Unit - 14' curb
W-2	Sand Filter A	Sand Filter Strip
W-9	MWS A	Modular Wetlands Unit - 14' curb
W-10	Detention Basin A	Detention Basin
W-11	Sand Filter B	Sand Filter Strip
W-13	Strip C	Vegetative Strip
W-15	Detention Basin B	Detention Basin
Outfall #3 East		
E-4	MWS E	Modular Wetlands Unit - 14' curb
E-5	Basin A	Infiltration Basin
E-6	Rain Garden A	Rain Garden
E-7	Rain Garden B	Rain Garden
E-8	Strip D	Vegetative Strip
E-9	Rain Garden C	Rain Garden
E-10	Rain Garden D	Rain Garden
E-11	Rain Garden E	Rain Garden
E-14	Strip E	Biofiltration Strip
E-15	Rain Garden F	Rain Garden
E-21	Strip F	Vegetative Strip
E-22	MWS G	Modular Wetlands Unit - 22' grate
E-23	MWS C	Modular Wetlands Unit - 14' UG Curb
E-28	MWS D	Modular Wetlands Unit - 14' Curb
E-32	Detention Basin C	Detention Basin
E- 33	Strip G & Swale B	Vegetative Strip / Grass swale
E-34	Basin A	Infiltration Basin
E-35	Swale A	Grass Swale
E-36	Basin A	Infiltration Basin
E-37	Basin A	Infiltration Basin
E-38	MWS E	Modular Wetlands Unit - 22' grate
E-39	MWS F	Modular Wetlands Unit - 14' grate
E-40	MWS H	Modular Wetlands Unit - 14' grate
E-41	Strip C	Vegetative Strip
E-42	Basin A	Infiltration Basin

UHS Temecula Medical Center

BMP Summary Spreadsheet

Ultimate

Hydrologic Subarea

* = To be calculated at time of ultimate BMP submittal package

Outfall #1 West		Title	BMP
W-1		MWS B	Modular Wetlands Unit - 14' curb
W-2		Sand Filter A	Sand Filter Strip
W-3	*	Detention Basin B/ Sand filter C	Detention Basin/ Sand Filter Strip
W-4	*	Detention Basin C/ Sand filter D	Detention Basin/ Sand Filter Strip
W-5	*	Detention Basin D/ Sand Filter E	Detention Basin/ Sand Filter Strip
W-6	*	Detention Basin E/ Sand Filter F	Detention Basin/ Sand Filter Strip
W-7	*	Detention Basin F/ San Filter G	Detention Basin/ Sand Filter Strip
W-9		MWS A	Modular Wetlands Unit - 14' curb
W-10		Detention Basin A	Detention Basin
W-11		Sand Filter B	Sand Filter Strip
W-12		Detention Basin C	Detention Basin
W-13		Detention Basin C	Detention Basin

Outfall #3 East

E-1	*	Swale B/detention basin C	Grass Swale/Detention basin
E-2	*	Detention basin C & sand filter I	Detention Basin/ sand strip
E-4		MSW E	Modular Wetlands Unit - 14' Curb
E-5		Basin A	Infiltration Basin
E-6		Rain Garden A	Rain Garden
E-7		Rain Garden B	Rain Garden
E-8		Strip D	Vegetative Strip
E-9		Rain Garden C	Rain Garden
E-10		Rain Garden D	Rain Garden
E-11		Rain Garden E	Rain Garden
E-12	*	Chamber/Rain Garden	Infiltration Chamber/Rain Garden

NOTE:
THIS IS THE APPROVED ULTIMATE PLAN FROM THE APPROVED WQMP.
THIS ADDENDUM WILL ADDRESS THE AREAS IN THE SAME WAY.

I.E IF AN AREA ON THIS SHEET SAYS IT WILL ROUTE TO A PROPOSED BASIN, THEN IN THIS ADDENDUM THE AREA IN THE ULTIMATE CONDITION WILL ALSO ROUTE TO A NEW PROPOSED BASIN.

THE FOLLOWING MAP WILL HIGHLIGHT THE PLAN FOR THIS ADDENDUM IN RETROSEPCT TO THE APPROVED ULTIMATE CONDITION.

SHEET FROM APPROVED WQMP REPORT

E-13		Swale A	Vegetative Swale
E-14		Strip E	Vegetative Strip
E-15		Rain Garden F	Rain Garden
E-16	*	Chamber /Rain Garden	Infiltration Chamber/ Rain Garden
E-17	*	Chamber	Infiltration Chamber
E-18	*	Chamber	infiltration Chamber
E-19	*	Chamber	Infiltration Chamber
E-20		MWS F	Modular Wetlands Unit - 14' grate
E-21	*	Chamber	Infiltration Chamber
E-22		MWS G	Modular Wetlands Unit - 22' grate
E-23		MWS C	Modular Wetlands Unit - 14' UG Curb
E-24	*	Chamber	Infiltration Chamber
E-25	*	Chamber	Infiltration Chamber
E-26		MWS E	Modular Wetlands Unit - 22' grate
E-27		MWS H	Modular Wetlands Unit - 14' grate
E-28		MWS D	Modular Wetlands Unit - 14' Curb
E-29	*	Chamber	Infiltration Chamber
E-30	*	Chamber	Infiltration Chamber
E-31	*	Chamber	Infiltration Chamber

SHEET FROM APPROVED WQMP REPORT

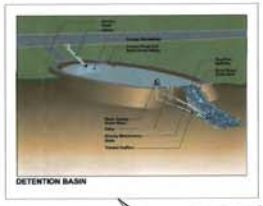
ULTIMATE CONDITION FOR THIS ADDENDUM

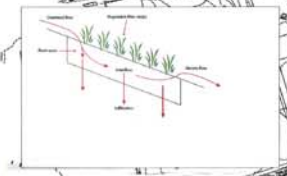
NOTE:

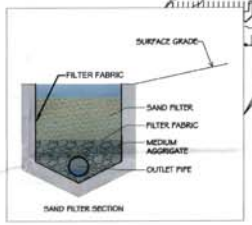
FOUR BASINS PROPOSED IN THIS ULTIMATE EXHIBIT ARE B, E, F & D.

IN THIS ADDEDNUM THE FOUR BASIN WILL BE PROPOSED AS B, E, A2, & A1.

IF A EXISTING BMP WILL REMAIN BUT BE "MOVED" A "1" IS ADDED TO END OF NAME. FOR EXAMPLE, VEGETATIVE FILTER E EXISTS BUT IT WILL MOVE DUE TO SITE DESIGN CHANGES. ITS CALC AND CONFIGURATION WILL REMAIN. IT WILL BE MOVED AND RENAMED E1.

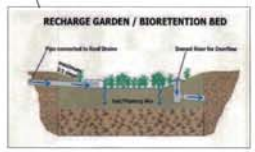













UNDERGROUND INFILTRATION CHAMBERS


BIOFILTRATION SWALE

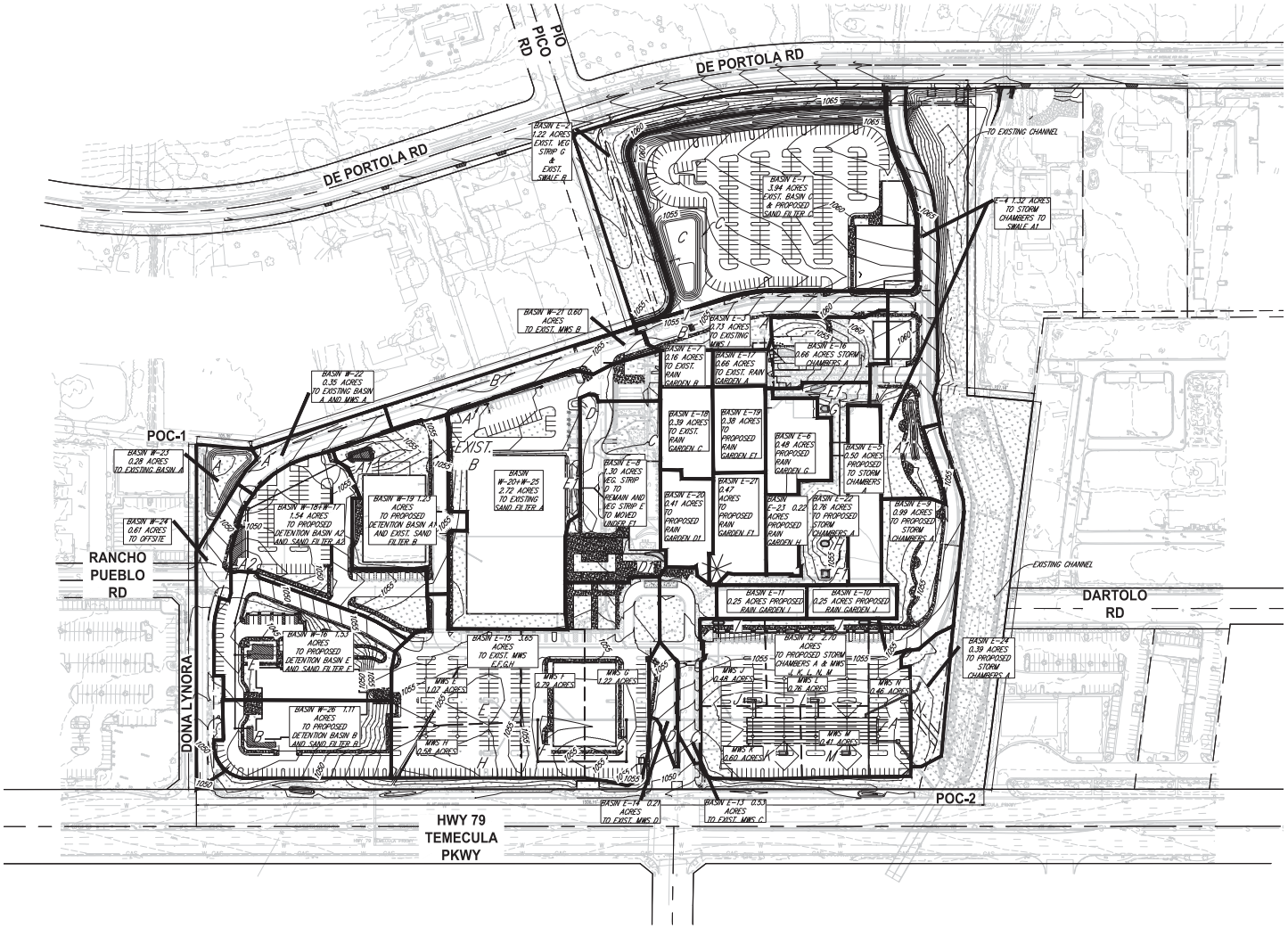
PRELIMINARY STAGE

Attachment 1a: DMA Exhibit Checklist

See Chapter 3.3.3 for guidance

- ☑ Point(s) of Compliance
- ☑ Project Site Boundary
- ☑ Project Disturbed Area Footprint
- ☑ Drainage management area (DMA) boundaries, DMA ID numbers, DMA areas (square footage or acreage), DMA land use and pollutants of concern, and DMA type (i.e., drains to structural BMP, self-retaining, self-mitigating, or de-minimis) Note on exhibit de-minimis areas and discuss reason they could not be included in Step 1.3 per section 5.2.2 of the manual. Include offsite areas receiving treatment to mitigate Onsite Water Quality Equivalency.
- ☑ Include summary table of worksheet inputs for each DMA.
- ☑ Include description of self-mitigating areas.
- ☑ Potential pollutant source areas and corresponding required source control BMPs (see Chapter 4, Appendix E.1, and Step 3.5)
- ☑ Proposed Site Design BMPs and surface treatments used to minimize imperviousness. Show sections, details, and dimensions of site design BMP's per chapter 5.2.3 (tree wells, dispersion areas, rain gardens, permeable pavement, rain barrels, green roofs, etc.)
- ☑ Proposed Harvest and Use BMPs
- ☑ Underlying hydrologic soil group (Web Soil Survey)
- ☑ Existing natural hydrologic features (watercourses, seeps, springs, wetlands, pond, lake)
- ☑ Existing topography and impervious areas
- ☑ Proposed grading and impervious areas. If the project is a subdivision or spans multiple lots show pervious and impervious totals for each lot.
- ☑ Existing and proposed site drainage network and connections to drainage offsite
- ☑ Potable water wells, onsite wastewater treatment systems (septic), underground utilities
- ☑ Structural BMPs (identify location, structural BMP ID No., type of BMP, and size/detail)
- ☑ Approximate depth to groundwater at each structural BMP
- ☑ Approximate infiltration rate and feasibility (full retention, partial retention, biofiltration) at each structural BMP
- ☑ Critical coarse sediment yield areas to be protected and or conveyed through the project site, if applicable.
- ☑ Temporary Construction BMPs. Include protection of source control, site design and structural BMPs during construction.

DMA/BASIN EXHIBIT


DE PORTOLA RD
PIO PICO RD
DE PORTOLA RD
POC-1
RANCHO PUEBLO RD
DONA LYNORA
HWY 79 TEMECULA PKWY
DARTOLO RD
POC-2
EXISTING CHANNEL
TO EXISTING CHANNEL
BASIN E-2 1.22 ACRES EXIST. VEG STRIP G & EXIST. SWALE R
BASIN E-1 3.94 ACRES EXIST. BASIN C & PROPOSED SAND FILTER D
BASIN E-4 1.32 ACRES TO STORM CHAMBERS TO SWALE A1
BASIN W-21 0.80 ACRES TO EXIST. MWS B
BASIN E-3 0.73 ACRES TO EXISTING MWS I
BASIN E-7 0.16 ACRES TO EXIST. RAIN GARDEN B
BASIN E-16 0.66 ACRES STORM CHAMBERS A
BASIN E-18 0.39 ACRES TO EXIST. RAIN GARDEN C
BASIN E-19 0.38 ACRES TO PROPOSED RAIN GARDEN E1
BASIN E-6 0.48 ACRES PROPOSED RAIN GARDEN G
BASIN E-5 0.50 ACRES PROPOSED TO STORM CHAMBERS A
BASIN E-8 1.30 ACRES VEG. STRIP D TO REMAIN AND VEG STRIP E TO MOVED UNDER E1
BASIN E-20 0.41 ACRES TO PROPOSED RAIN GARDEN D1
BASIN E-21 0.47 ACRES TO PROPOSED RAIN GARDEN F1
BASIN E-23 0.22 ACRES PROPOSED RAIN GARDEN H
BASIN E-22 0.76 ACRES TO PROPOSED STORM CHAMBERS A
BASIN E-9 0.89 ACRES TO PROPOSED STORM CHAMBERS A
BASIN E-11 0.25 ACRES PROPOSED RAIN GARDEN J
BASIN E-10 0.25 ACRES PROPOSED RAIN GARDEN J
BASIN E-24 0.39 ACRES TO PROPOSED STORM CHAMBERS A
BASIN W-22 0.35 ACRES TO EXISTING BASIN A AND MWS A
BASIN W-23 0.28 ACRES TO EXISTING BASIN A
BASIN W-24 0.61 ACRES TO OFFSITE
BASIN W-19 1.23 ACRES TO PROPOSED DETENTION BASIN A1 AND EXIST. SAND FILTER B
BASIN W-18+W-17 1.54 ACRES TO PROPOSED DETENTION BASIN A2 AND SAND FILTER A3
BASIN W-20+W-25 2.72 ACRES TO EXISTING SAND FILTER A
BASIN W-16 1.53 ACRES TO PROPOSED DETENTION BASIN E AND SAND FILTER E
BASIN W-26 1.11 ACRES TO PROPOSED DETENTION BASIN B AND SAND FILTER B1
BASIN E-15 3.65 ACRES TO EXIST. MWS E,F,G,H
BASIN E-12 2.70 ACRES TO PROPOSED STORM CHAMBERS A & MWS
BASIN E-14 0.21 ACRES TO EXIST. MWS D
BASIN E-13 0.53 ACRES TO EXIST. MWS C
MWS J 0.48 ACRES
MWS L 0.78 ACRES
MWS N 0.46 ACRES
MWS M 0.41 ACRES
MWS K 0.60 ACRES
MWS I 1.07 ACRES
MWS H 0.58 ACRES
MWS F 0.79 ACRES
MWS G 1.22 ACRES
LEGEND
BASIN X-Y XXXX ACRES
BASIN NAME AND BMP ROUTING
X
BMP NAME
DMA/BASIN BOUNDARY EAST
POC-#
POINT OF COMPLIANCE
1055
MAJOR CONTOUR LABEL
SCALE: 1"=100'
0
100
200
300
400

BMP EXHIBIT

PROCEDURE/ WORKSHEETS FOR RIVERSIDE COUNTY WQMP MANUAL 2006

PROCEDURE VOLUME BASED BMPS

Volume Based BMPs

General

The largest concentrations of pollutants are found in runoff from small volume storms and from the first flush of larger storms. Therefore, volume based BMPs should be sized to capture and treat the initial and more frequent runoff surges that convey the greatest concentration of pollutants. To maximize treatment and avoid health hazards, volume-based BMPs must retain and release the runoff between a 24 and 72 hour period. This handbook typically recommends a draw down time of 48 hours, as recommended by the California BMP Handbook. The drawdown time refers to the minimum amount of time the design volume must be retained.

In order to meet RWQCB requirements, the method for determining the design volume is based on capturing 85 percent of the total annual runoff. These 85 percent capture values were determined throughout Riverside County using rain gages with the greatest periods of record. Key model assumptions are based on studies used in the *Urban Runoff Quality Management, WEF Manual of Practice No. 23/ASCE Manual of Practice No. 87, (1998)* and *the California Best Management Practice Handbook*. This handbook gives a simple procedure for determining the design volume of a BMP based on the location of the project.

BMP Design Volume Calculations

Following is a step-by-step procedure for determining design volume for BMPs using Worksheet 1. Examples of the following procedure can be found in Appendix B.

1. Create Unit Storage Volume Graph:
   a) Locate the project site on the Slope of the Design Volume Curve contained in Appendix A.
   b) Read the slope value at this location. This value is the Unit Storage Volume for a runoff coefficient of 1.0.
   c) Plot this value as a point (corresponding to a coefficient of 1.0) on the Unit Storage Volume Graph shown on Figure 2.
   d) Draw a straight line from this point to the origin, to create the graph.

2. Determine the runoff coefficient (C) from Figure 1 or the following relationship:

$$C = .858i^3 - .78i^2 + .774i + .04$$

where i = impervious percentage

3. Using the runoff coefficient found in step 2, determine 85th percentile unit storage volume (V_u) using Figure 2 (created in step 1).

4. Determine the design storage volume (V_{BMP}). This is the volume to be used in the design of selected BMPs presented in this handbook.

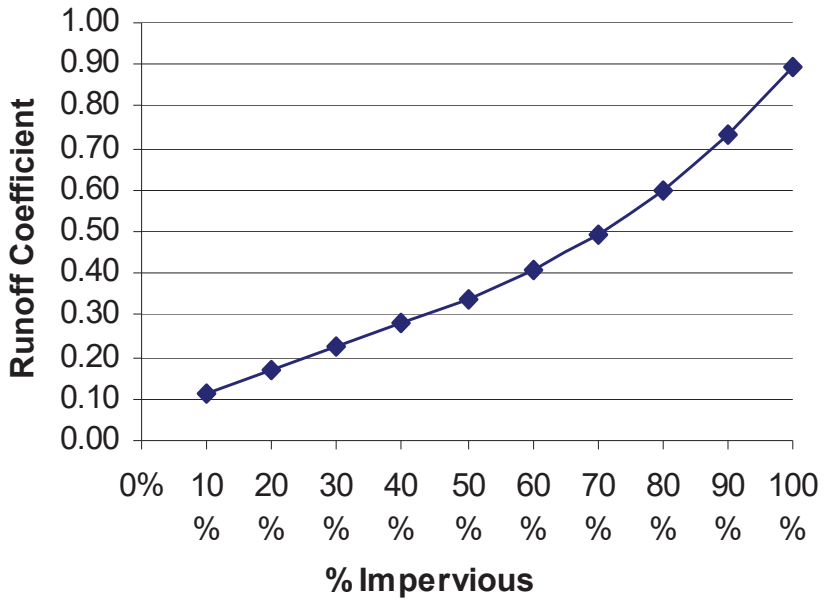
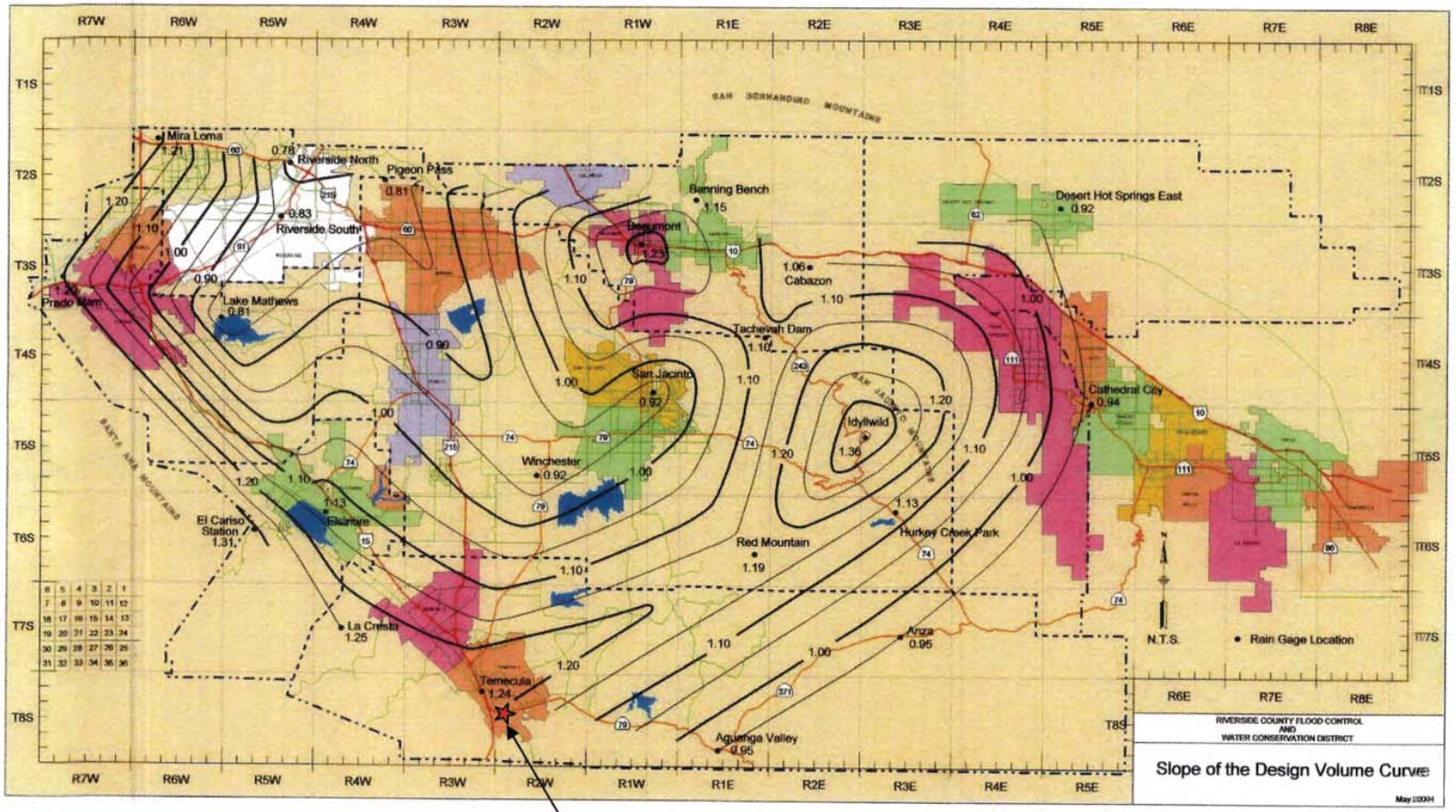


Figure 1. Impervious – Coefficient Curve (WEF/ASCE Method[24])

[24] Imperviousness is the decimal fraction of the total catchment covered by the sum of roads, parking lots, sidewalks, rooftops, and other impermeable surfaces of an urban landscape.

APPENDIX A SLOPE OF THE DESIGN VOLUME CURVE



Project Site

SLOPE = 1.2 (SAME AS APPROVED WQMP)

WORKSHEET 1
BMP DESIGN VOLUME

Worksheet 1

Design Procedure for BMP Design Volume

85th percentile runoff event

Designer: _____

Company: _____

Date: _____

Project: _____

Location: _____

1. Create Unit Storage Volume Graph a. Site location (Township, Range, and Section).	T &R Section	*(1)*
b. Slope value from the Design Volume Curve in **Appendix A**. c. Plot this value on the Unit Storage Volume Graph shown on **Figure 2**. d. Draw a straight line form this point to the origin, to create the graph	Slope = _____ Is this graph attached? Yes ☐ No ☐	*(2)*
2. Determine Runoff Coefficient a. Determine total impervious area	$A_{impervious}$ = _____ acres	*(5)*
b. Determine total tributary area	A_{total} = _____ acres	*(6)*
c. Determine Impervious fraction i = ***(5)*** / ***(6)***	i = _____	*(7)*
d. Use ***(7)*** in **Figure 1** to find Runoff OR $C = .858i^3 - .78i^2 + .774i + .04$	C = _____	*(8)*
3. Determine 85% Unit Storage Volume a. Use ***(8)*** in **Figure 2** Draw a Vertical line from ***(8)*** to the graph, then a Horizontal line to the desired V_u value.	V_u = _____ in-acre / acre	*(9)*
4. Determine Design Storage Volume a. V_{BMP} = ***(9)*** x ***(6)*** [in- acres]	V_{BMP} = _____ in-acre	*(10)*
b. V_{BMP} = ***(10)*** / 12 [ft- acres]	V_{BMP} = _____ ft-acre	*(11)*
c. V_{BMP} = ***(11)*** x 43560 [ft^3]	V_{BMP} = _____ ft^3	*(12)*

Notes: _____

FIGURE 2
UNIT STORAGE CURVE

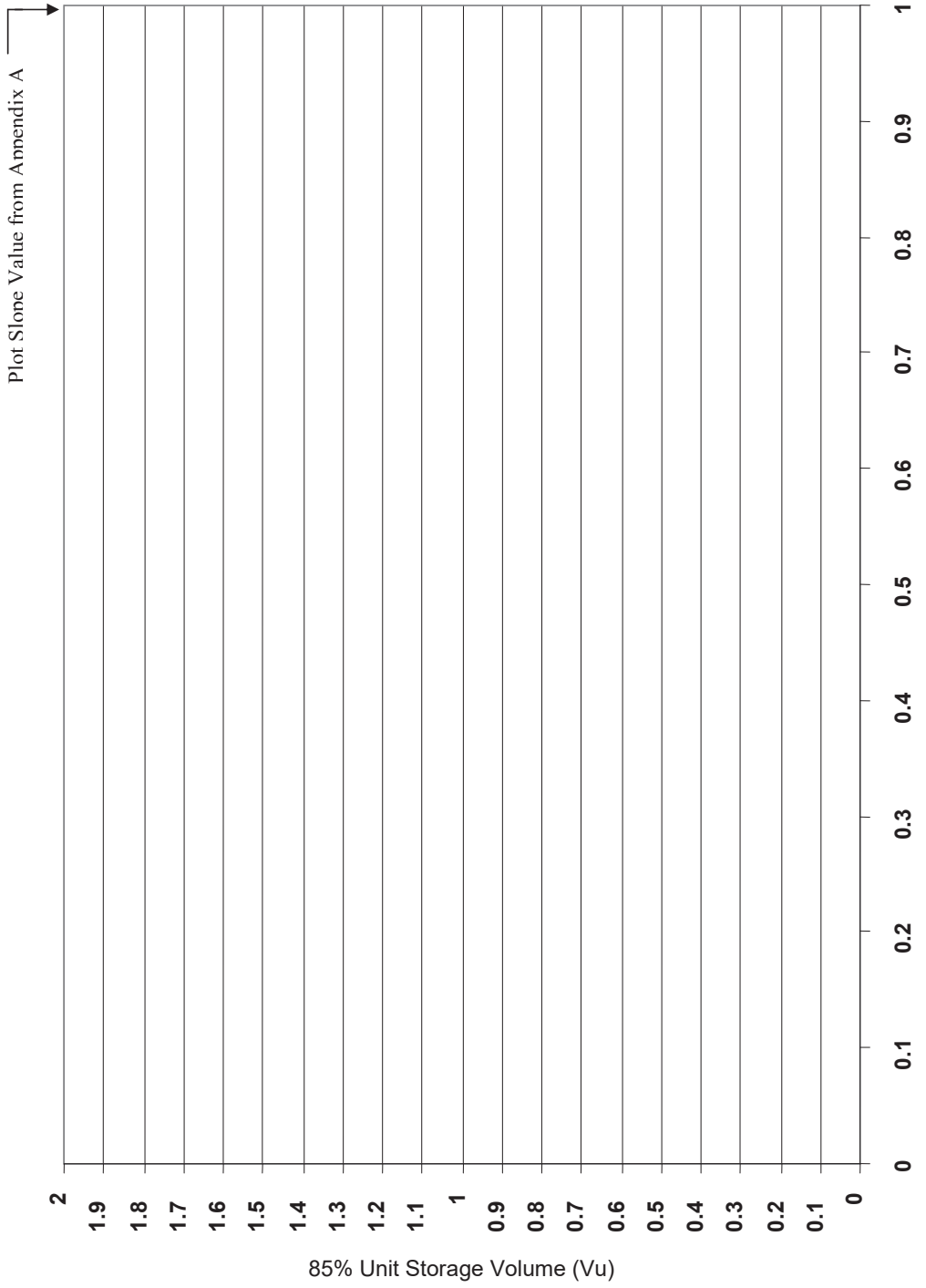


Figure 2 Unit Storage Volume Graph

FIGURE 1
IMPERVIOUS COEFFICIENT CURVE

3. Using the runoff coefficient found in step 2, determine 85th percentile unit storage volume (V_u) using Figure 2 (created in step 1).

4. Determine the design storage volume (V_{BMP}). This is the volume to be used in the design of selected BMPs presented in this handbook.

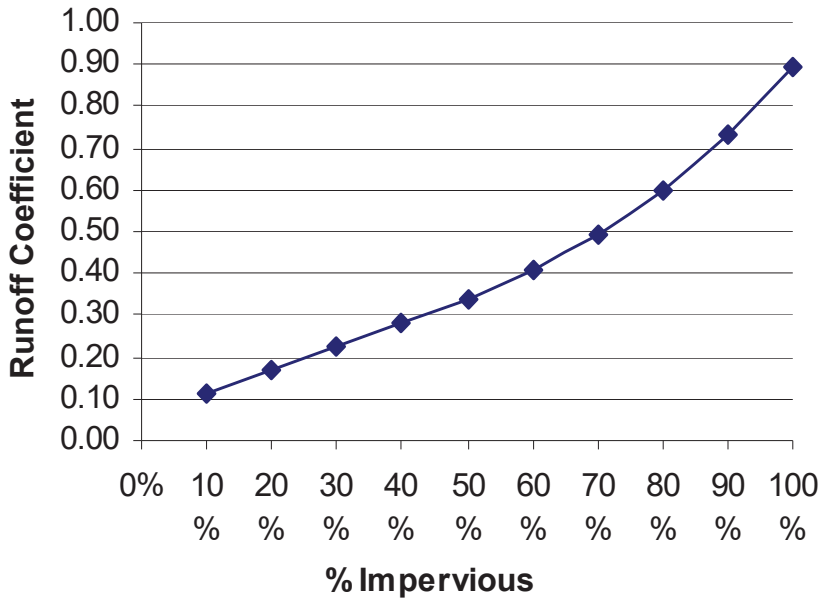


Figure 1. Impervious – Coefficient Curve (WEF/ASCE Method[24])

[24] Imperviousness is the decimal fraction of the total catchment covered by the sum of roads, parking lots, sidewalks, rooftops, and other impermeable surfaces of an urban landscape.

WORKSHEET 2
FLOW DESIGN

Worksheet 2

Design Procedure Form for Design Flow

Uniform Intensity Design Flow

Designer: _____

Company: _____

Date: _____

Project: _____

Location: _____

1. Determine Impervious Percentage		
a. Determine total tributary area	A_{total} = _____ acres	***(1)***
b. Determine Impervious %	i = _____ %	***(2)***
2. Determine Runoff Coefficient Values Use **Table 4** and impervious % found in step 1		
a. A Soil Runoff Coefficient	C_a = _____	***(3)***
b. B Soil Runoff Coefficient	C_b = _____	***(4)***
c. C Soil Runoff Coefficient	C_c = _____	***(5)***
d. D Soil Runoff Coefficient	C_d = _____	***(6)***
3. Determine the Area decimal fraction of each soil type in tributary area		
a. Area of A Soil / ***(1)*** =	A_a = _____	***(7)***
b. Area of B Soil / ***(1)*** =	A_b = _____	***(8)***
c. Area of C Soil / ***(1)*** =	A_c = _____	***(9)***
d. Area of D Soil / ***(1)*** =	A_d = _____	***(10)***
4. Determine Runoff Coefficient		
a. C = ***(3)***x***(7)*** + ***(4)***x***(8)*** + ***(5)***x***(9)*** + ***(6)***x***(10)*** =	C = _____	***(11)***
5. Determine BMP Design flow		
a. Q_{BMP} = C x I x A = ***(11)*** x 0.2 x ***(1)***	Q_{BMP} = _____ $\frac{ft^3}{s}$	***(12)***

TABLE 4

Table 4. Runoff Coefficients for an Intensity = 0.2 $^{in}/_{hr}$ for Urban Soil Types*

Impervious %	A Soil RI =32	B Soil RI =56	C Soil RI =69	D Soil RI =75
0 (Natural)	0.06	0.14	0.23	0.28
5	0.10	0.18	0.26	0.31
10	0.14	0.22	0.29	0.34
15	0.19	0.26	0.33	0.37
20 (1-Acre)	0.23	0.30	0.36	0.40
25	0.27	0.33	0.39	0.43
30	0.31	0.37	0.43	0.47
35	0.35	0.41	0.46	0.50
40 (1/2-Acre)	0.40	0.45	0.50	0.53
45	0.44	0.48	0.53	0.56
50 (1/4-Acre)	0.48	0.52	0.56	0.59
55	0.52	0.56	0.60	0.62
60	0.56	0.60	0.63	0.65
65 (Condominiums)	0.61	0.64	0.66	0.68
70	0.65	0.67	0.70	0.71
75 (Mobilehomes)	0.69	0.71	0.73	0.74
80 (Apartments)	0.73	0.75	0.77	0.78
85	0.77	0.79	0.80	0.81
90 (Commercial)	0.82	0.82	0.83	0.84
95	0.86	0.86	0.87	0.87
100	0.90	0.90	0.90	0.90

*Complete District's standards can be found in the Riverside County Flood Control Hydrology Manual

WORKSHEET 11
WATER INLET

Water Quality Inlets

General

A water quality inlet is a device that removes oil and grit from stormwater runoff before the water enters the stormdrain system. It consists of one or more chambers that promote sedimentation of coarse materials and separation of free oil from stormwater. Manufacturers have created a variety of configurations to accomplish this. A specific model can be selected from the manufactuer based on the design flow rate. A water quality inlet is generally used for pretreatment before discharging into another type of BMP.

Water Quality Inlet Design Criteria:

Design Parameter	Unit	Design Criteria
Design Flow	cfs	Q_{BMP}
Maximum Tributary Area	acres	1 [4]
Clean-out Schedule	-	At least twice per year [4]

1 Ventura County's Technical Guidance Manual for Stormwater Quality Control Measures
2 City of Modesto's Guidance Manual for New Development Stormwater Quality Control Measures
3 CA Stormwater BMP Handbook for New Development and Significant Redevelopment
4 Riverside County DAMP Supplement A Attachment

Water Quailty Inlet Design Procedure

1. Design Flow
   Use Worksheet 2 - Design Procedure Form for Design Flow Rate, Q_{BMP}.

2. Select Model
   Select a water quality inlet model that will appropriately treat the design flow using manufacturer specifications.

3. Maintenance Requirements
   In order to maintain its ability to treat stormwater, the inlet must be cleaned at least twice a year. Arrangements should be made to do this.

Worksheet 11

Design Procedure Form for Water Quality Inlets

Designer:_____
Company:_____
Date:_____
Project:_____
Location:_____

1. Determine Design Flow Rate (Use Worksheet 2)	Q_{BMP} = _____ cfs
2. Water Quality Inlet Manufacturer Name Model Flow Capacity of Model Please include a technical sheet from the manufacturer with information on this model.	 Make _____ Model _____ Capacity _____ cfs

Notes:

WORKSHEET 3
DETENTION BASIN

Worksheet 3

Design Procedure Form for Extended Detention Basin

Designer:_____
Company:_____
Date:_____
Project:_____
Location:_____

1. Determine Design Volume (Use Worksheet 1) a. Total Tributary Area (minimum 5 ac.) b. Design Volume, V_{BMP}	A_{total} = _____ acres V_{BMP} = _____ ft^3
2. Basin Length to Width Ratio (2:1 min.)	Ratio = _____ L:W
3. Two-Stage Design a. Overall Design 1) Depth (3.5' min.) 2) Width (30' min.) 3) Length (60' min.) 4) Volume (must be ≥ V_{BMP}) b. Upper Stage 1) Depth (2' min.) 2) Bottom Slope (2% to low flow channel recommended) c. Bottom Stage 1) Depth (1.5' to 3') 2) Length 3) Volume (10 to 25% of V_{BMP})	 Depth = _____ ft Width = _____ ft Length = _____ ft Volume = _____ ft^3 Depth = _____ ft Slope = _____ % Depth = _____ ft Length = _____ ft Volume = _____ ft^3
4. Forebay Design a. Forebay Volume (5 to 10% of V_{BMP}) b. Outlet pipe drainage time (≅ 45 min)	Volume = _____ ft^3 Drain time = _____ minutes
5. Low-flow Channel a. Depth (9" minimum) b. Flow Capacity (2 * Forebay Q_{OUT})	Depth = _____ ft $Q_{Low\ Flow}$ = _____ cfs
6. Trash Rack or Gravel Pack (check one)	Trash Rack _____ Gravel Pack _____

7. Basin Outlet a. Outlet type (check one)	Single orifice _____ Multi-orifice plate _____ Perforated Pipe _____ Other _____
b. Orifice Area	Area = _____ ft^2
c. Orifice Type	Type _____
d. Maximum Depth of water above bottom orifice	Depth = _____ ft
e. Length of time for 50% V_{BMP} drainage (24 hour minimum)	Time 50% = _____ hrs
f. Length of time for 100% V_{BMP} drainage (between 48 and 72 hours)	Time 100% = _____ hrs
g. Attached Documents (all required) 1) Stage vs. Discharge 2) Stage vs. Volume 3) Inflow Hydrograph 4) Basin Routing	Attached Documents (check) 1) _____ 2) _____ 3) _____ 4) _____
8. Increased Runoff (optional) Is this basin also mitigating increased runoff? Attached Documents (all required) for 2, 5, & 10-year storms: 1) Stage vs. Discharge 2) Stage vs. Volume 3) Inflow Hydrograph 4) Basin Routing	Yes _____ No _____ (if No, skip to #9) Attached Documents (check) 1) _____ 2) _____ 3) _____ 4) _____
9. Vegetation (check type)	____ Native Grasses ____ Irrigated Turf ____ Other _____
10. Embankment a. Interior slope (4:1 max.)	Interior Slope = _____ %
b. Exterior slope (3:1 max.)	Exterior Slope = _____ %
11. Access a. Slope (10% max.)	Slope = _____ %
b. Width (16 feet min.)	Width = _____ ft

Notes:

WORKSHEET 8
DELEWARE
SAND FILTER

Delaware Sand Filter

General

A Delaware sand filter is an underground filter consisting of two parallel concrete trenches divided by a close-spaced wall. Water enters the sedimentation trench through grated covers or a storm drain system. After this permanent pool fills, water overflows through the weir notches at the top of the dividing wall into the filter chamber. This assures that water enters the filter chamber as sheet flow and protects the sand bed from scouring. The permanent pool in the sedimentation chamber is dead storage, which allows heavier sediment to settle out and inhibits resuspension of particles from earlier storms. After passing through the filter bed, water flows into a clearwell area and into the storm drain system. Flows greater than the design volume can enter the sedimentation trench as long as an overflow weir is installed into the clearwell. A Delaware filter can treat tributary areas up to 5 acres.

Delaware Sand Filter Basin Design Criteria:

Design Parameter	Unit	Design Criteria [1]
Design Volume	ft^3	V_{BMP}
Maximum tributary area	acre	5
Weir height between sedimentation chamber and sand filter	in	2” above sand filter bed
Draw-down time	hrs	48 [3]
Minimum gravel depth over sand	in	2
Minimum sand depth, ds	in	18
Minimum gravel underdrain depth, dg	in	16
Filter Coefficient, k	ft/day	2
Top layer and underdrain gravel size	in	0.5 to 2-inch diameter stone
Sand size	-	ASTM C33 concrete sand
Slope of top layer	%	0 (horizontal)
Minimum slope of underdrain or bottom of filter	%	0.5%
Minimum size underdrain	-	6” PVC schedule 40
Minimum size diameter perforation	in	3/8
Minimum number of holes per row	-	6
Minimum spacing between rows	in	6
Minimum weephole diameter	in	3
Minimum spacing between weepholes	in	9 (center to center)
Sedimentation chamber and sand filter width	in	18 to 30

1 Ventura County’s Technical Guidance Manual for Stormwater Quality Control Measures
2 City of Modesto’s Guidance Manual for New Development Stormwater Quality Control Measures
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4 Riverside County DAMP Supplement A Attachment

Delaware Sand Filter Design Procedure

1. Design Storage Volume
   Use Worksheet 1- Design Procedure Form for Design Storage Volume, V_{BMP}.

2. Maximum Water Depth
   Determine maximum allowable height (2h) of water that can pond over the filter based on elevation differences between the filter bed top and the BMP inlet. An overflow weir should be designed to allow flows greater than the design volume to pass into the clearwell.

3. Sand Filter/Sediment Chamber Surface Area
   The DSF shell must have the capacity to accept and store the design volume. The dimensions are sized to provide a filter area that processes the design volume in the desired time frame (48 hrs). The areas of the sedimentation chamber A_s and filter bed A_f are typically set equal. The required areas are calculated as follows depending on the maximum depth of water above the filter bed:

   a. If 2h < 2.67 ft Use: $A_s = A_f = V_{BMP} / (4.1h + 0.9)$
   b. If 2h > 2.67 ft Use: $A_s = A_f = [V_{BMP} \times d_s] / [k (h + d_s) t]$

   where: V_{BMP} = Design Volume ft^3
   A_f = filter bed surface area, ft^2
   A_s = sediment chamber surface area, ft^2
   d_s = depth of sand, ft
   k = filter coefficient 0.0833 ft/hr
   h = one half of maximum allowable water depth (2h), ft
   t = 48 hour draw-down time

4. Select sediment chamber and filter width ($W_s = W_f$)
   Site considerations usually dictate the final dimensions of the facility. Sediment chambers and filter chambers are normally 18-30 inches wide. Use of standard grates requires a width of 26 inches.

5. Sediment Chamber and Filter Length

   $L_s = L_f = A_f / W_f$

   Round length up as appropriate and compute adjusted Area

   $A_s = A_f = W_f \times L_f$

6. Storage volume in Filter Voids Vv

   $V_v = A_f \times 0.4(d_s + d_g)$ {assume 40% voids}
   Where d_g = underdrain gravel depth

7. Volume of flow through filter during filling, V_Q

$$V_Q = [k \times A_f \times (d_s + h) \times t_v] / [d_s]$$

Use t_v = 1 hour to fill voids

8. Net Volume Required to be Stored in Chambers Awaiting Filtration V_r

$$V_r = V_{BMP} - V_v - V_Q$$

9. Available Storage in Chambers V_a

$$V_a = 2h(A_f + A_s)$$

If $V_a \geq V_r$, proceed with design
If $V_a < V_r$, adjust width and/or length and repeat steps 3-8.

10. Filter Bed
    a. Top Gravel Layer
    The washed gravel layer at the top of the filter should be two inches thick, composed of stone 0.5 to 2.0 inches in diameter. In areas with high sediment load (TSS concentration >200 mg/L), the two-inch layer of stone on top of the sand filter should be underlain with filter fabric meeting the specifications in Table 8.
    b. Sand Layer
    The sand layer should be a minimum depth of 18 inches consisting of ASTM C33 concrete sand. A layer of geotextile fabric meeting the specifications in Table 6 must separate the sand and gravel layer below.
    c. Gravel Layer
    The gravel layer surrounding the collector pipes should be at least 16 inches thick and be composed of 0.5 to 2-inch diameter stone and provide at least two inches of cover over the tops of the drainage pipes.

10. Underdrain Piping
    The underdrain piping should follow the same criteria and design as the Austin Sand Filter. Shallow rectangular drain tiles may be fabricated from such materials as fiberglass structural channels, saving several inches of filter depth. Drain tiles should be in two-foot lengths and spaced to provide gaps 1/8-inch less than the smallest gravel sizes on all four sides. Sections of tile may be cast in the dividing wall between the filter and the clearwell to provide shallow outflow orifices.

11. Weep Holes
    In addition to the underdrain pipes, weepholes should be installed between the filter chamber and the clearwell to provide relief in case of pipe clogging. The weepholes should be three (3) inches in diameter. Minimum spacing should be nine (9) inches center to center. The openings on the filter side of the dividing wall should be covered to the width of the trench with 12-inch high plastic hardware cloth of ¼ inch mesh or galvanized steel wire, minimum wire diameter 0.03-inch, number 4 mesh

hardware cloth anchored firmly to the dividing wall structure and folded a minimum of six (6) inches back under the bottom stone.

12. Grates and Covers
Grates and cast steel covers are designed to take the same wheel loads as the adjacent pavement. Where possible, use standard grates to reduce costs. Grates and covers should be supported by a galvanized steel perimeter frame.

13. Hoods/Traps
In applications where trapping of hydrocarbons and other floating pollutants is required, large-storm overflow weirs should be equipped with a 10-gauge aluminum hood or commercially available catch basin trap. The hood or trap should extend a minimum of one foot into the permanent pool.

14. Dewatering Drain
A six inch diameter dewatering drain with gate valve is to be installed at the top of the stone/sand filter bed through the partition separating the filter chamber from the clearwell chamber.

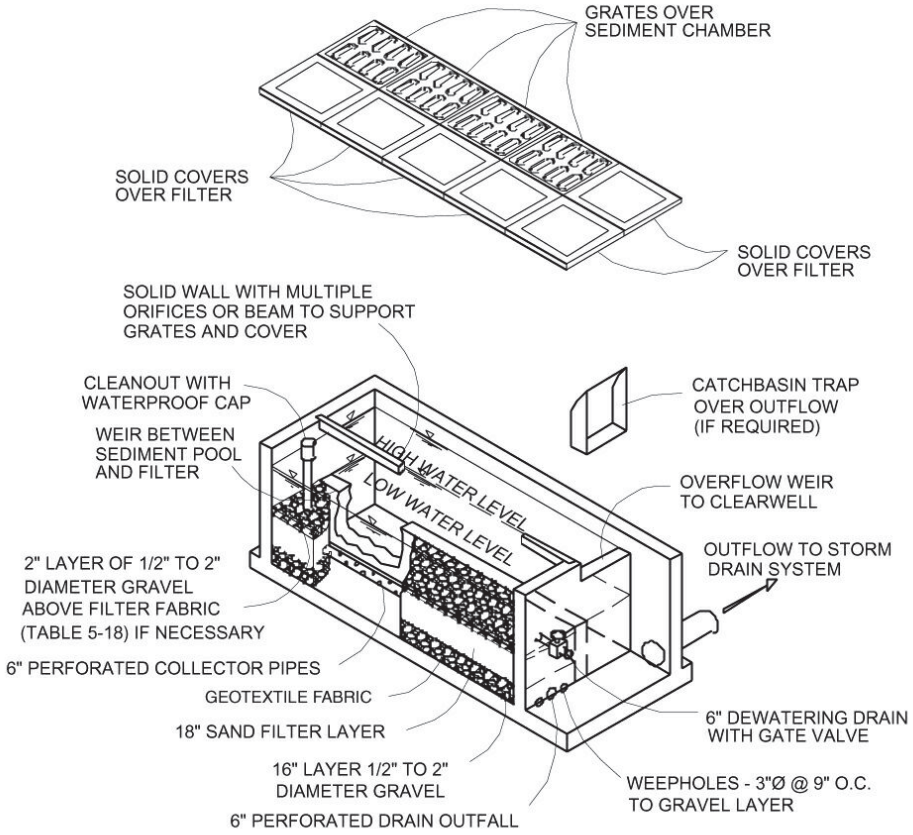


Figure 10: Delaware Sand Filter

Source: Ventura County Guidance Manual

Worksheet 8

Design Procedure Form for Delaware Sand Filter

Designer:_____
Company:_____
Date:_____
Project:_____
Location:_____

1. Determine Design Storage Volume (Use Worksheet 1) a. Total Tributary Area (maximum 100) b. Design Storage Volume, V_{BMP}	A_{total} = _____ acres V_{BMP} = _____ ft^3
2. Maximum Water Height in Sedimentation Basin* a. Invert elevation at connection to storm drain system. b. Sand Filter invert elevation (consider min. grade (1%) from storm drain). c. Estimate filter depth or use min. (3'). d. Top elevation of filter bed. e. Surface elevation at BMP inlet. f. Determine max. allowable height (2h) of water that can pond over the filter using the elevation difference between the filter bed top and the BMP inlet. 2h = [(C-B) – 1' Freeboard]	Elev. Storm Drain = _____ ft Elev. Filter Bottom = _____ ft Filter Depth = _____ ft Filter bed top elev. (pt B) = _____ ft BMP inlet Elev. (pt C) = _____ ft 2h = _____ ft
3. Minimum Surface Area of the Chambers If 2h < 2.67 feet (2'-8") $A_f = A_s = V_{BMP} / (4.1h + 0.9)$ If 2h > 2.67 feet (2'-8") $A_f = A_s = [V_{BMP} \times d_s] / [k(h+d_s)t_f]$ a. Sand bed depth, ds b. Filter Coefficient, k c. Draw-down time, t d. ½ max. allowable water depth over filter, h e. Sediment Chamber Area A_s, and Filter Surface Area A_f	d_s = _____ ft k = _____ ft/hr t = _____ hr h = _____ ft A_s and A_f = _____ ft^2

4. Sediment Chamber and Filter Dimensions a. Select width ($W_s = W_f$ = 18" to 30") b. Filter length ($L_s = L_f = A_{fm}/W_f$) c. Adjusted length (rounded) d. Adjusted area ($A_s = A_f = W_f \times L_f$)	 $W_s = W_f =$ _____ ft $L_s = L_f =$ _____ ft $L_s = L_f =$ _____ ft $A_s = A_f =$ _____ ft^2
5. System Storage Volume a. Storage in filter voids ($V_v = A_f \times 0.4(d_g + d_s)$) b. Volume of flow through filter ($V_Q = k \times A_f(d_s+h)$ 1hr / d_s) c. Required net storage ($V_r = V_{BMP} - V_v - V_Q$) d. Available storage ($V_a = 2h(A_f + A_s)$) If $V_a \geq V_r$, sizing is complete If $V_a < V_r$, repeat steps 4 and 5	 $V_v =$ _____ ft^3 $V_Q =$ _____ ft^3 $V_r =$ _____ ft^3 $V_a =$ _____ ft^3 Check $V_r \geq V_a$ _____

Notes:

* Based on these elevations, is there a sufficient elevation drop to allow gravity flow from the outlet of the control measure to the storm drain system? If no, investigate alternative on-site locations for treatment control, consider another treatment control measure more suitable for site conditions, or contact the District to discuss on-site pumping requirements.

WORKSHEET 10
VEGETATIVE STRIP

Filter Strips

General

Filter Strips are uniformly graded areas of dense vegetation designed to treat sheet flow stormwater runoff. Pollutants are removed by filtering and through settling of sediment and other solid particles as the design flow passes through (not over) the vegetation. Filter strips are usually as wide as the tributary area and must be long enough in the flow direction to adequately treat the runoff. Concentrated flows are redistributed uniformly across the top of the strip with a level spreader. A grass swale, sand filter, or infiltration BMP is recommended in conjunction with a filter strip.

This BMP is not appropriate for industrial sites or locations where spills occur. Important factors to consider when using this BMP include: thick vegetated cover is required to work properly, and not effective if length and flow characteristics are not met.

Filter Strip Design Criteria:

Design Parameter	Unit	Design Criteria
Design Flow	cfs	Q_{BMP} [1]
Maximum tributary area	acres	5 [1]
Maximum linear unit application rate (q_a)	cfs/ft x width	0.005 [1]
Minimum width (normal to flow)	ft	(Q_{BMP}) / (q_a) [1]
Minimum length (flow direction)	ft	15 [1]
Maximum slope (flow direction)	%	4 [1]
Vegetation	-	Turf grass (irrigated) or approved equal [1]
Minimum grass height	inches	2 [1]
Maximum grass height	inches	4 (typical) or as required to prevent lodging or shading [1]
Level Spreader	-	A level spreader must be applied to the flows before reaching the strip [4]
Recommendation	-	This BMP is recommended in conjunction with a grass swale, sand filter, or infiltration BMP [3]

1 Ventura County's Technical Guidance Manual for Stormwater Quality Control Measures
2 City of Modesto's Guidance Manual for New Development Stormwater Quality Control Measures
3 CA Stormwater BMP Handbook for New Development and Significant Redevelopment
4 Riverside County DAMP Supplement A Attachment

Filter Strip Design Procedure

1. Design Flow
   Use Worksheet 2 - Design Procedure Form for Design Flow Rate, Q_{BMP}.

2. Minimum Width
   Calculate minimum width of the grass strip filter (W_m) normal to flow direction:
   $W_m = (Q_{BMP})/(q_a)$
   $W_m = (Q_{BMP})/0.005$ cfs/ft (minimum)

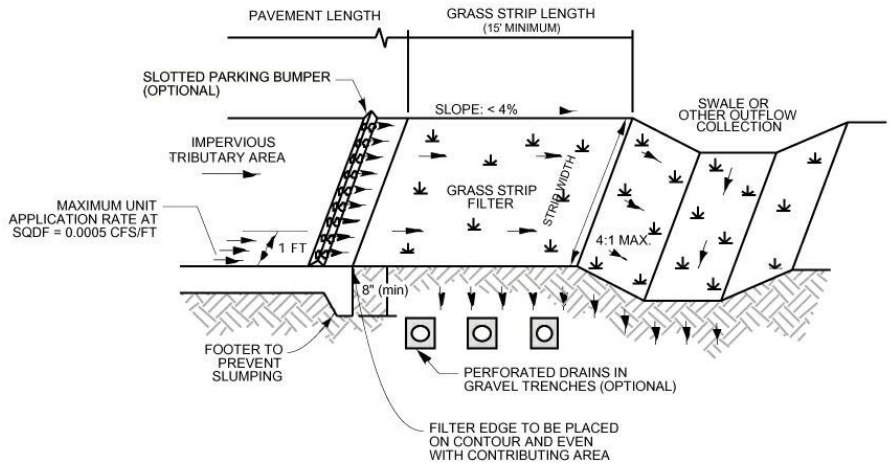
3. Minimum Length
   Length of the grass strip filter (Lm) in the direction of flow shall not be less than 15 feet.
   L_m = 15 feet (minimum)

4. Maximum Slope
   Slope of the ground in the direction of flow shall not be greater than 4 percent.

5. Flow Distribution
   Incorporate a device at the upstream end of the filter strip to evenly distribute flows along the top width, such as slotted curbing, modular block porous pavement, or other spreader devices. Concentrated flow delivered to the filter strip must be distributed evenly by means of a level spreader of similar concept.

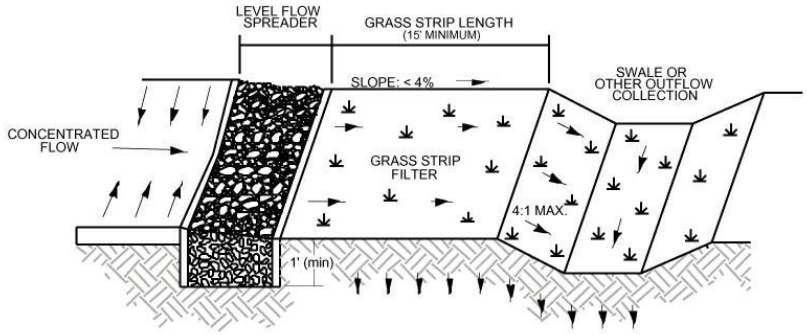
6. Vegetation
   Provide irrigated perennial turf grass to yield full, dense cover. Submit a Landscape Plan for stormwater agency review. Plan shall be prepared by a landscape or other appropriate specialist and shall include a site plan showing location and type of vegetation. Mow grass to maintain height approximately between 2 and 4 inches.

7. Outflow Collection
   Provide a means for outflow collection and conveyance (e.g. grass channel/swale, storm sewer, street gutter).



SHEET FLOW CONTROL

NOT TO SCALE



CONCENTRATED FLOW CONTROL

NOT TO SCALE

Figure 12: Grass Filter Strip

Source: Ventura County Guidance Manual

Worksheet 10

Design Procedure Form for Filter Strip

Designer:_____
Company:_____
Date:_____
Project:_____
Location:_____

1. Determine Design Flow (Use Worksheet 2)	Q_{BMP} = _____ cfs
2. Design Width $W_m = (Q_{BMP})/0.005$ cfs/ft	W_m = _____ ft
3. Design Length (15 ft minimum)	L_m = _____ ft
4. Design Slope (4 % maximum)	S_D = _____ %
5. Flow Distribution (check type used or describe "other")	___ slotted curbing ___ Modular Block Porous Pavement ___ Level Spreader ___other_____
6. Vegetation (describe)	_____ _____
5. Outflow Collection (check type used or describe "other")	___ Grass Swale ___ Street Gutter ___ Storm Drain ___ Underdrain ___ Other_____

Notes:

TABLE 4

Table 4. Runoff Coefficients for an Intensity = 0.2 $^{in}/_{hr}$ for Urban Soil Types*

Impervious %	A Soil RI =32	B Soil RI =56	C Soil RI =69	D Soil RI =75
0 (Natural)	0.06	0.14	0.23	0.28
5	0.10	0.18	0.26	0.31
10	0.14	0.22	0.29	0.34
15	0.19	0.26	0.33	0.37
20 (1-Acre)	0.23	0.30	0.36	0.40
25	0.27	0.33	0.39	0.43
30	0.31	0.37	0.43	0.47
35	0.35	0.41	0.46	0.50
40 (1/2-Acre)	0.40	0.45	0.50	0.53
45	0.44	0.48	0.53	0.56
50 (1/4-Acre)	0.48	0.52	0.56	0.59
55	0.52	0.56	0.60	0.62
60	0.56	0.60	0.63	0.65
65 (Condominiums)	0.61	0.64	0.66	0.68
70	0.65	0.67	0.70	0.71
75 (Mobilehomes)	0.69	0.71	0.73	0.74
80 (Apartments)	0.73	0.75	0.77	0.78
85	0.77	0.79	0.80	0.81
90 (Commercial)	0.82	0.82	0.83	0.84
95	0.86	0.86	0.87	0.87
100	0.90	0.90	0.90	0.90

*Complete District's standards can be found in the Riverside County Flood Control Hydrology Manual

WORKSHEET 9
VEGETATIVE SWALE

Grassed Swales

General

A Grass swale is a wide, shallow densely vegetated channel that treats stormwater runoff as it is slowly conveyed into a downstream system. These swales have very shallow slopes in order to allow maximum contact time with the vegetation. The depth of water of the design flow should be less than the height of the vegetation. Contact with vegetation improves water quality by plant uptake of pollutants, removal of sediment, and an increase in infiltration. Overall the effectiveness of a grass swale is limited and it is recommended that they are used in combination with other BMPs.

This BMP is not appropriate for industrial sites or locations where spills occur. Important factors to consider when using this BMP include: natural channelization should be avoided to maintain this BMP's effectiveness, large areas must be divided and treated with multiple swales, thick cover is required to function properly, impractical for steep topography, and not effective with high flow velocities.

Grass Swale Design Criteria:

Design Parameter	Unit	Design Criteria
Design Flow	cfs	Q_{BMP}
Minimum bottom width	ft	2 ft [2]
Maximum channel side slope	H:V	3:1 [2]
Minimum slope in flow direction	%	0.2 (provide underdrains for slopes < 0.5) [1]
Maximum slope in flow direction	%	2.0 (provide grade-control checks for slopes >2.0) [1]
Maximum flow velocity	ft/sec	1.0 (based on Manning n = 0.20) [1]
Maximum depth of flow	inches	3 to 5 (1 inch below top of grass) [1]
Minimum contact time	minutes	7 [1]
Minimum length	ft	Sufficient length to provide minimum contact time [1]
Vegetation	-	Turf grass or approved equal [1]
Grass height	inches	4 to 6 (mow to maintain height) [1]

1 Ventura County's Technical Guidance Manual for Stormwater Quality Control Measures
2 City of Modesto's Guidance Manual for New Development Stormwater Quality Control Measures
3 CA Stormwater BMP Handbook for New Development and Significant Redevelopment
4 Riverside County DAMP Supplement A Attachment

Grass Swale Design Procedure

1. Design Flow
   Use Worksheet 2 - Design Procedure Form for Design Flow Rate, Q_{BMP}.

2. Swale Geometry
   a. Determine bottom width of swale (must be at least 2 feet).
   b. Determine side slopes (must not be steeper than 3:1; flatter is preferred).
   c. Determine flow direction slope (must be between 0.2% and 2%; provide underdrains for slopes less than 0.5% and provide grade control checks for slopes greater than 2.0%

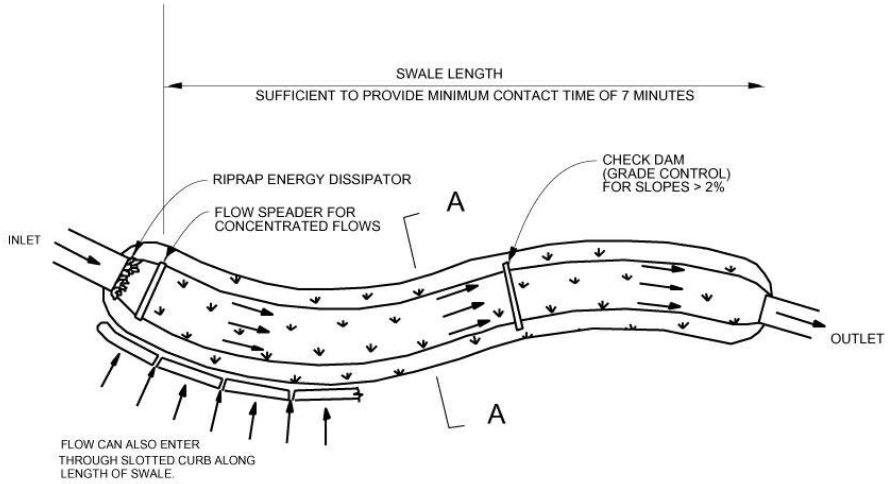
3. Flow Velocity
   Maximum flow velocity should not exceed 1.0 ft/sec based on a Mannings n = 0.20

4. Flow Depth
   Maximum depth of flow should not exceed 3 to 5 inches based on a Manning n = 0.20

5. Swale Length
   Provide length in the flow direction sufficient to yield a minimum contact time of 7 minutes.
   L = (7 min) x (flow velocity ft/s) x (60 sec/min)

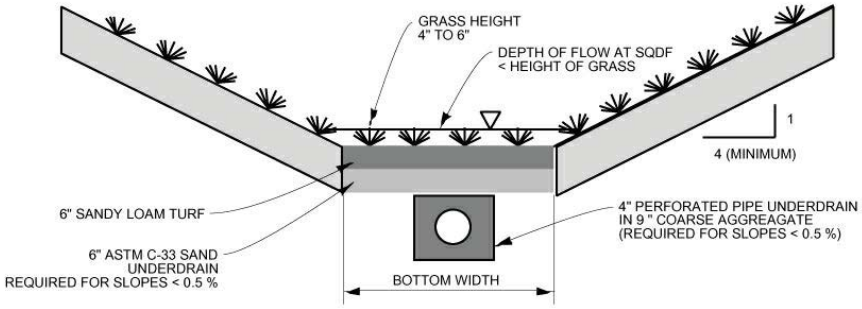
6. Vegetation
   Provide irrigated perennial turf grass to yield full, dense cover. Mow to maintain height of 4 to 6 inches.

7. Provide sufficient flow depth for flood event flows to avoid flooding of critical areas or structures.



TRAPEZOIDAL GRASS SWALE PLAN

NOT TO SCALE



TRAPEZOIDAL GRASS SWALE SECTION

NOT TO SCALE

Figure 11: Grassed Swale

Source: Ventura County Guidance Manual

Worksheet 9

Design Procedure Form for Grassed Swale

Designer:_____
Company:_____
Date:_____
Project:_____
Location:_____

1. Determine Design Flow (Use Worksheet 2)	Q_{BMP} = _____ cfs
2. Swale Geometry a. Swale bottom width (b) b. Side slope (z) c. Flow direction slope (s)	 b = _____ ft z = _____ s = _____ %
3. Design flow velocity (Manning n = 0.2)	v = _____ ft/s
4. Depth of flow (D)	D = _____ ft
5. Design Length (L) L = (7 min) x (flow velocity, ft/sec) x 60	L = _____ ft
6. Vegetation (describe)	_____ _____
8. Outflow Collection (check type used or describe "other")	___ Grated Inlet' ___ Infiltration Trench ___ Underdrain ___ Other_____

Notes:

CALCULATIONS

THE FOLLOWING CALCULATIONS ON EXCEL FOLLOW THE WORKSHEETS FROM THE 2006 RIVERSIDE COUNTY WATER QUALITY MANAGEMENT PLAN FOR URBAN RUNOFF SEEN ON THE PREVIOUS PAGES UNDER "PROCEDURE"

DMA/BASIN AREAS

DMA/BASIN TABLE:

NAME	BASIN NAME	AREA (ACRE)	AREA (SF)	IMP. AREA (SF)	IMP. AREA (ACRES	IMP. FRACTION	*C	% IMP.
Existing Basin C+ Sand Filter C	E-1	3.94	171626.4	139554.7214	3.203735569	0.813130855	0.614925722	81.31308552
Rain Garden G	E-6	0.48	20908.8	20295.9397	0.465930663	0.970688882	0.841111415	97.06888822
Rain Garden H	E-23	0.22	10890	9472.3401	0.217455007	0.869820028	0.687747948	86.98200275
Rain Garden I	E-11	0.25	10890	10890	0.25	1	0.892	100
Rain Garden J	E-10	0.25	10890	10890	0.25	1	0.892	100
Detention Basin E+Sand Filter E	W-16	1.53	66646.8	50539.4253	1.160225558	0.758317358	0.552547655	75.83173581
Detention Basin A2+Sand Filter A2	W-17+W-18	1.54	67082.4	48534.1998	1.114191915	0.723501243	0.516637268	72.35012432
Detention Basin A1+Existing Sand Filter B	W-19	1.23	53578.8	36493.6545	0.837779029	0.681121162	0.476444754	68.11211617
Existing Sand Filter A	W-20+W-25	2.72	118483.2	88511.2717	2.031939203	0.747036472	0.540611571	74.70364718
Existing MWS B	W-21	0.6	26136	18489.9345	0.424470489	0.707450815	0.500979135	70.7450815
Existing Basin A + Existing MWS A	W-22	0.35	15246	9203.7543	0.211289125	0.603683215	0.411754747	60.36832153
Offsite	W-24	0.61	26571.6	21409.9247	0.49150424	0.805744656	0.606078927	80.57446559
Detention Basin B1+Sand Filter B1	W-26	1.11	48351.6	36668.3015	0.841788372	0.758367903	0.552601801	75.8367903
MWS J	E-12 J	0.48	20908.8	14475	0.332300275	0.692292241	0.486683891	69.22922406
MWS K	E-12 K	0.6	26136	19784.4788	0.454189137	0.756981895	0.551119206	75.69818947
MWS L	E-12 L	0.76	33105.6	28925.1023	0.664028978	0.87372234	0.693095059	87.372234
MWS M	E-12 M	0.41	17859.6	16947.6189	0.389063795	0.948936085	0.805261374	94.89360848
SWALE A1	E-4	1.32	57499.2	32989	0.757323232	0.573729721	0.389352672	57.37297215
VEGETATED STRIP D1+E1	E-8	1.3	56628	41941	0.962832874	0.740640672	0.533973984	74.06406725
STORM CHAMBERS A	E-9	0.99	43124.4	11038.853	0.253417195	0.255976964	0.201408255	25.59769643
STORM CHAMBERS A	E-16	0.66	28749.6	19774.9474	0.453970326	0.687833827	0.482567833	68.78338273
STORM CHAMBERS A	E-5	0.5	21780	21780	0.5	1	0.892	100
STORM CHAMBERS A	E-24	0.39	16988.4	0	0	0	0.04	0
STORM CHAMBERS A	E-22	0.76	33105.6	800	0.018365473	0.024165096	0.058260409	2.416509594
MWS N	E-12 N	0.46	20037.6	18494.6091	0.424577803	0.922995224	0.764561628	92.2995224

* Or Figure 2 in Riverside County WQMP Manaul 2006

RAIN GARDEN CALCULATIONS

BASIN CALCULATIONS- RAIN GARDEN

NAME	BASIN NAME	Af (ft^2)	Af (ft^2)
Rain Garden G	E-6	34.7784	35
Rain Garden H	E-23	13.2303	13
Rain Garden I	E-11	19.0195	19
Rain Garden J	E-10	19.0195	19

df= filter bed depth (ft)	4
k= coefficient of permeability of filter media (ft/day)	30
hf=average height of water above filter bed (ft)	0
tf=design filter bed drain time (days)	1.67

(1.67 days or 40 hours is recommended maximum for sand filters, 48 hours for bioretention)

Note: Rain Gardens will be slightly larger than the minimum Af shown on the table above to be conservative.

SAND FILTER CALCULATIONS

Deleware Sand Filter

						***			min. 3 ft																			
	Sand Filter	Basin Name	Atotal	Vbmp	Elev. Storm Drain	Elev. Filter Bottom	Filter Depth	Filter Bed Top Elevation	BMP inlet Elev	2h (ft)	ds (ft)	dg(ft)	k (ft/hr)	t (hrs)	h (ft)	2h<2.67, THEN	YES, Af	NO, Af	Af	Ws (ft)	Ls (ft)	Ls (ft)	As (ft)	Vv (ft^3)	Vq (ft^3)	Vr (ft^3)	Va (ft^3)	Va>=Vr, THEN
*	Existing Basin C+ Sand Filter C	E-1	3.94	1001.154	99.5	100	3	103	105	1	1.5	1.333	0.0833	48	0.5	YES	339.3742	187.7915	339.3742	2	169.69	170	340	384.5789	37.69317	578.8819	679.3742	FINISHED
**	Detention Basin E+Sand Filter E	W-16	1.53	361.0035	99.5	100	3	103	105	1	1.5	1.333	0.0833	48	0.5	YES	122.3741	67.71524	122.3741	2	61.187	61	122	138.6743	13.59168	208.7375	244.3741	FINISHED
**	Detention Basin A2+Sand Filter A2	W-17+W-18	1.54	346.5924	99.5	100	3	103	105	1	1.5	1.333	0.0833	48	0.5	YES	117.4889	65.01208	117.4889	2	58.744	59	118	133.1385	13.04911	200.4048	235.4889	FINISHED
**	Detention Basin B1+Sand Filter B1	W-26	1.11	261.9045	99.5	100	3	103	105	1	1.5	1.333	0.0833	48	0.5	YES	88.78119	49.12674	88.78119	2	44.391	44	88	100.6068	9.86063	151.437	176.7812	FINISHED

Notes:
S= Sediment Chamber
F=Filter Chamber
* Sand Filter Sized at 10% only because the Existing Basin C already takes care of the entire Vbmp the DMA/Basin area is requiring
** Sand Filter sized at 10% for pretreatment
***100 used as a base elevation for calculations only

BASIN CALCULATIONS

BASIN CALCULATIONS

						N/A	N/A	N/A	N/A						aka "treatment train"	
NAME	BASIN NAME	Vu	Vbmp (in-acre)	Vbmp (ft-acre)	Vbmp (ft^3)	**BASIN WIDTH (ft)	**BASIN LENGTH (ft)	**BASIN DEPTH (ft)	BASIN VOL. (ft^3)	ACTUAL VOL IN MS SHAPE	VOL >= Vbmp	SAND FILTER (cf) ***	STORM CHAMBER (cf)	EXISTING (cf)	Vbmp= Vbasin+Vsand filter+Vstorm chamber (sf)	VOL >= Vbmp
Existing Basin C+ Sand Filter C	E-1	0.7	2.758	0.229833333	10011.54	25	120	3.5	10500	0	NO	1001.154	0	18000	19001.154	YES
Rain Garden G	E-6	1	0.48	0.04	1742.4	15	35	3.5	1837.5	1745	YES	0	0	0	1745	YES
Rain Garden H	E-23	0.83	0.1826	0.015216667	662.838	15	15	3.5	787.5	665	YES	0	0	0	665	YES
Rain Garden I	E-11	1.05	0.2625	0.021875	952.875	15	20	3.5	1050	960	YES	0	0	0	960	YES
Rain Garden J	E-10	1.05	0.2625	0.021875	952.875	15	20	3.5	1050	960	YES	0	0	0	960	YES
Detention Basin E+Sand Filter E	W-16	0.65	0.9945	0.082875	3610.035	22	35	3.5	2695	3250	NO	361.0035	0	0	3611.0035	YES
Detention Basin A2+Sand Filter A2	W-17+W-18	0.62	0.9548	0.079566667	3465.924	20	40	3.5	2800	3120	NO	346.5924	0	0	3466.5924	YES
Detention Basin A1+Existing Sand Filter B	W-19	0.58	0.7134	0.05945	2589.642	20	40	3.5	2800	2331	NO	0	0	962	3293	YES
Detention Basin B1+Sand Filter B1	W-26	0.65	0.7215	0.060125	2619.045	22	35	3.5	2695	2358	NO	261.9045	0	0	2619.9045	YES

** Doesn't matter, will change with shape in MS

Note: Standpipe Sizing will be done in Final Engineering this is preliminary

*** See Sand Filter Calculation.

MWS CALCULATIONS

Modular Wetlands Systems

Name	BASIN NAME	AREA (ACRE)	AREA (SF)	IMP. AREA (SF)	IMP. AREA (ACRES	IMP. FRACTION	*C	% IMP.	BMP Design Flow (cfs)
MWS J	E-12 J	0.48	20908.8	14475	0.332300275	0.692292241	0.486684	69.22922406	**0.046721654**
MWS K	E-12 K	0.6	26136	19784.4788	0.454189137	0.756981895	0.551119	75.69818947	**0.066134305**
MWS L	E-12 L	0.76	33105.6	28925.1023	28925.1023	0.87372234	0.693095	87.372234	**0.105350449**
MWS M	E-12 M	0.41	17859.6	16947.6189	0.389063795	0.948936085	0.805261	94.89360848	**0.066031433**
MWS N	E-12 N	0.46	20037.6	18494.6091	0.424577803	0.922995224	0.764562	92.2995224	**0.07033967**

PROPOSED DMAS/BASINS

PROPOSED E-1

BASIN C TO REMAIN AND PROPOSED SAND FILTER C TO BE ADDED

Worksheet 1

Design Procedure for BMP Design Volume

85th percentile runoff event

Designer: MARGIE DE LAURELL / CYNTHIA CABALLERO
Company: URS CORP.
Date: 12/22/10
Project: UHS TEMECULA
Location: DETENTION BASIN "C" (E-32)

1. Create Unit Storage Volume Graph a. Site location (Township, Range, and Section). b. Slope value from the Design Volume Curve in **Appendix A**. c. Plot this value on the Unit Storage Volume Graph shown on **Figure 2.** d. Draw a straight line form this point to the origin, to create the graph	T 8S &R 2W Section 18 *(1)* Slope = 1.20 *(2)* Is this graph attached? Yes ☑ No ☐
2. Determine Runoff Coefficient a. Determine total impervious area b. Determine total tributary area c. Determine Impervious fraction i = *(5)* / *(6)* d. Use *(7)* in **Figure 1** to find Runoff OR $C = .858i^3 - .78i^2 + .774i + .04$	$A_{impervious}$ = _____ acres *(5)* A_{total} = 4.30 acres *(6)* i = _____ *(7)* C = .83 *(8)*
3. Determine 85% Unit Storage Volume a. Use *(8)* in **Figure 2** Draw a Vertical line from *(8)* to the graph, then a Horizontal line to the desired V_u value.	V_u = 1.06 in-acre / acre *(9)*
4. Determine Design Storage Volume a. V_{BMP} = *(9)* x *(6)* [in- acres] b. V_{BMP} = *(10)* / 12 [ft- acres] c. V_{BMP} = *(11)* x 43560 [ft^3]	V_{BMP} = 4.558 in-acre *(10)* V_{BMP} = .3798 ft-acre *(11)* V_{BMP} = 16,546 ft^3 *(12)*

Notes: E-32

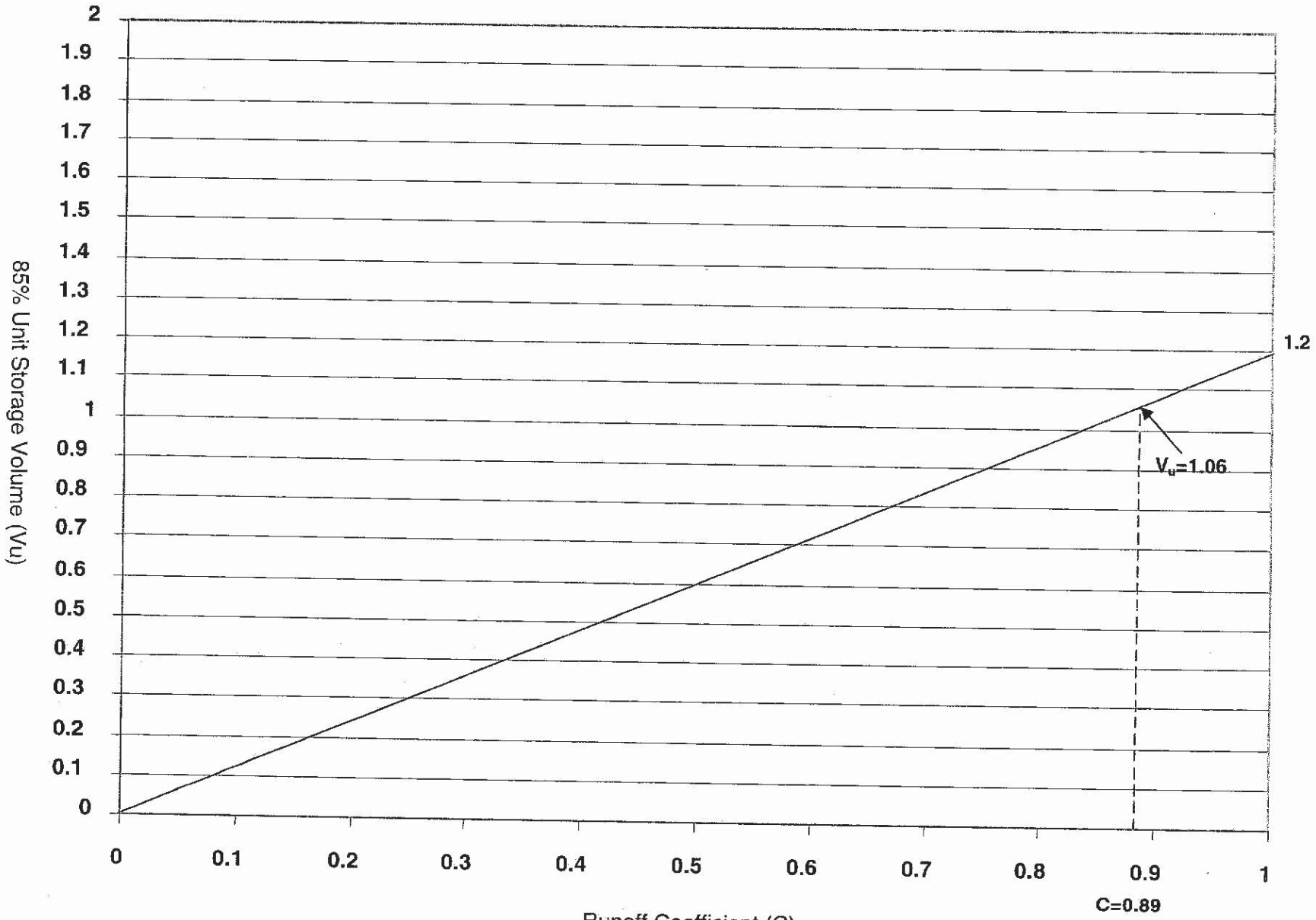


Figure 2 Unit Storage Volume Graph

Worksheet 3

Design Procedure Form for Extended Detention Basin

Designer: MARGIE DE LAUREL / CYNTHIA GABALDON
Company: URS CORP
Date: 12/18/10
Project: UHS TEMECULA
Location: DETENTION BASIN "C" (E-32)

1. Determine Design Volume (Use Worksheet 1) a. Total Tributary Area (minimum 5 ac.) b. Design Volume, V_{BMP}	A_{total} = 4.30 acres V_{BMP} = 16,545 ft^3
2. Basin Length to Width Ratio (2:1 min.)	Ratio = 2:1 L:W
3. Two-Stage Design a. Overall Design 1) Depth (3.5' min.) 2) Width (30' min.) 3) Length (60' min.) 4) Volume (must be ≥ V_{BMP}) b. Upper Stage 1) Depth (2' min.) 2) Bottom Slope (2% to low flow channel recommended) c. Bottom Stage 1) Depth (1.5' to 3') 2) Length 3) Volume (10 to 25% of V_{BMP})	Depth = 5 ft Width = 30 ft Length = 60 ft Volume = 18,000 ft^3 Depth = _____ ft Slope = _____ % Depth = _____ ft Length = _____ ft Volume = _____ ft^3
4. Forebay Design a. Forebay Volume (5 to 10% of V_{BMP}) b. Outlet pipe drainage time (≅ 45 min)	Volume = _____ ft^3 Drain time = _____ minutes
5. Low-flow Channel a. Depth (9" minimum) b. Flow Capacity (2 * Forebay Q_{OUT})	Depth = _____ ft $Q_{Low\ Flow}$ = _____ cfs
6. Trash Rack or Gravel Pack (check one)	Trash Rack _____ Gravel Pack ✓

7. Basin Outlet a. Outlet type (check one)	Single orifice ✓ Multi-orifice plate _____ Perforated Pipe _____ Other _____
b. Orifice Area c. Orifice Type d. Maximum Depth of water above bottom orifice e. Length of time for 50% V_{BMP} drainage (24 hour minimum) f. Length of time for 100% V_{BMP} drainage (between 48 and 72 hours) g. Attached Documents (all required) 1) Stage vs. Discharge 2) Stage vs. Volume 3) Inflow Hydrograph 4) Basin Routing	Area = _____ ft^2 Type _____ Depth = _____ ft Time 50% = 24 hrs Time 100% = 72 hrs Attached Documents (check) 1) _____ 2) _____ 3) _____ 4) _____
8. Increased Runoff (optional) Is this basin also mitigating increased runoff? Attached Documents (all required) for 2, 5, & 10-year storms: 1) Stage vs. Discharge 2) Stage vs. Volume 3) Inflow Hydrograph 4) Basin Routing	Yes ✓ No _____ (if No, skip to #9) SEE HYDROLOGY REPORT Attached Documents (check) 1) _____ 2) _____ 3) _____ 4) _____
9. Vegetation (check type)	✓ Native Grasses _____ Irrigated Turf _____ Other _____
10. Embankment N/A a. Interior slope (4:1 max.) b. Exterior slope (3:1 max.)	Interior Slope = _____ % Exterior Slope = _____ %
11. Access N/A a. Slope (10% max.) b. Width (16 feet min.)	Slope = _____ % Width = _____ ft

PROPOSED SAND FILTER C

SEE EXCEL SHEET CALCULATION

PROPOSED E-2

UHS Temecula Medical Center

BMP Summary Spreadsheet

Phase 1
Hydrologic Subarea

Outfall #1 West	Title	BMP
W-1	MWS B	Modular Wetlands Unit - 14' curb
W-2	Sand Filter A	Sand Filter Strip
W-9	MWS A	Modular Wetlands Unit - 14' curb
W-10	Detention Basin A	Detention Basin
W-11	Sand Filter B	Sand Filter Strip
W-13	Strip C	Vegetative Strip
W-15	Detention Basin B	Detention Basin
Outfall #3 East		
E-4	MWS E	Modular Wetlands Unit - 14' curb
E-5	Basin A	Infiltration Basin
E-6	Rain Garden A	Rain Garden
E-7	Rain Garden B	Rain Garden
E-8	Strip D	Vegetative Strip
E-9	Rain Garden C	Rain Garden
E-10	Rain Garden D	Rain Garden
E-11	Rain Garden E	Rain Garden
E-14	Strip E	Biofiltration Strip
E-15	Rain Garden F	Rain Garden
E-21	Strip F	Vegetative Strip
E-22	MWS G	Modular Wetlands Unit - 22' grate
E-23	MWS C	Modular Wetlands Unit - 14' UG Curb
E-28	MWS D	Modular Wetlands Unit - 14' Curb
E-32	Detention Basin C	Detention Basin
E- 33	Strip G & Swale B	Vegetative Strip / Grass swale
E-34	Basin A	Infiltration Basin
E-35	Swale A	Grass Swale
E-36	Basin A	Infiltration Basin
E-37	Basin A	Infiltration Basin
E-38	MWS E	Modular Wetlands Unit - 22' grate
E-39	MWS F	Modular Wetlands Unit - 14' grate
E-40	MWS H	Modular Wetlands Unit - 14' grate
E-41	Strip C	Vegetative Strip
E-42	Basin A	Infiltration Basin

E-33 MISSING IT S FOR VEG STRIP G AND BIO SWALE B IN PHASE 1

EXISTING VEGETATIVE STRIP G (TO REMAIN)

Worksheet 2

Design Procedure Form for Design Flow

Uniform Intensity Design Flow

Designer: CYNTHIA GABALDON
Company: URS CORP
Date: 6/3/11
Project: UHS
Location: Temecula, Ca E-33 Strip 6

1. Determine Impervious Percentage		
a. Determine total tributary area	A_{total} = 1.26 acres	*(1)*
b. Determine Impervious %	i = 0 %	*(2)*
2. Determine Runoff Coefficient Values Use Table 4 and impervious % found in step 1		
a. A Soil Runoff Coefficient	C_a =	*(3)*
b. B Soil Runoff Coefficient	C_b = .14	*(4)*
c. C Soil Runoff Coefficient	C_c =	*(5)*
d. D Soil Runoff Coefficient	C_d =	*(6)*
3. Determine the Area decimal fraction of each soil type in tributary area		
a. Area of A Soil / *(1)* =	A_a =	*(7)*
b. Area of B Soil / *(1)* =	A_b = 1.0	*(8)*
c. Area of C Soil / *(1)* =	A_c =	*(9)*
d. Area of D Soil / *(1)* =	A_d =	*(10)*
4. Determine Runoff Coefficient		
a. C = *(3)*x*(7)* + *(4)*x*(8)* + *(5)*x*(9)* + *(6)*x*(10)* =	C = .14	*(11)*
5. Determine BMP Design flow		
a. Q_{BMP} = C x I x A = *(11)* x 0.2 x *(1)*	Q_{BMP} = .04 $\frac{ft^3}{s}$	*(12)*

Worksheet 10

Design Procedure Form for Filter Strip

Designer: Cynthia Caballero
Company: VRS, LORD
Date: 6/3/11
Project: VHS
Location: Temecula Ca E-33

1. Determine Design Flow (Use Worksheet 2)	Q_{BMP} = 1.07 cfs
2. Design Width $W_m = (Q_{BMP})/0.005$ cfs/ft	W_m = 7 ft
3. Design Length (15 ft minimum)	L_m = 35 ft
4. Design Slope (4 % maximum)	S_D = 2 %
5. Flow Distribution (check type used or describe "other")	___ slotted curbing ___ Modular Block Porous Pavement ___ Level Spreader ✓ other grass
6. Vegetation (describe)	grass
5. Outflow Collection (check type used or describe "other")	___ Grass Swale ___ Street Gutter ✓ Storm Drain ___ Underdrain ___ Other

Notes: Strip 6

SWALES:

Biofiltration Swale Calculation - Phase I

Design:

Water Quality Design Flow:

$Q_{BMP} = C \times I \times A$

Soil Type = B

Area	Acre	% Impervious	Runoff Coefficient[1]	Rainfall Intensity[1] (in/hr)	Q_{BMP} (cfs)	Minimum Swale Length (ft)	Design Swale Length (ft)	Length Check	Velocity of Swale (ft/s)
E-35	1.77	35	0.41	0.2	0.15	100	46	**OK – using at least min. design**	0.11
E-33	1.26	10	0.33	0.2	0.10	100	26	**OK – using at least min design**	0.06

1. Based on Table 4 from Riverside County Water Quality Management Plan

Swale ID:
E-35 = Swale A
E-33 = Swale B

Calculations based on WQMP Manual Worksheet 9

Design Procedure Form for Design Flow

Uniform Intensity Design Flow

Designer: CYNTHIA GABALDON
Company: URS CORP.
Date: 6/3/11
Project: UHS TEMECULA
Location: Vegetative Swale "B" E-33

1. Determine Impervious Percentage		
a. Determine total tributary area	A_{total} = 1.26 acres	*(1)*
b. Determine Impervious %	i = 10 %	*(2)*
2. Determine Runoff Coefficient Values Use Table 4 and impervious % found in step 1		
a. A Soil Runoff Coefficient	C_a =	*(3)*
b. B Soil Runoff Coefficient	C_b =	*(4)*
c. C Soil Runoff Coefficient	C_c = .33	*(5)*
d. D Soil Runoff Coefficient	C_d =	*(6)*
3. Determine the Area decimal fraction of each soil type in tributary area		
a. Area of A Soil / *(1)* =	A_a =	*(7)*
b. Area of B Soil / *(1)* =	A_b =	*(8)*
c. Area of C Soil / *(1)* =	A_c = 1.0	*(9)*
d. Area of D Soil / *(1)* =	A_d =	*(10)*
4. Determine Runoff Coefficient		
a. C = *(3)*x*(7)* + *(4)*x*(8)* + *(5)*x*(9)* + *(6)*x*(10)* =	C = .33	*(11)*
5. Determine BMP Design flow		
a. Q_{BMP} = C x I x A = *(11)* x 0.2 x *(1)*	Q_{BMP} = .083 $\frac{ft^3}{s}$	*(12)*

Worksheet 9

Design Procedure Form for Grassed Swale

Designer: CYNTHIA GABALDON
Company: URS CORP.
Date: 6/3/11
Project: UHS TEMECULA
Location: vegetative swale "B" E-33

1. Determine Design Flow (Use Worksheet 2)	Q_{BMP} = .083 cfs
2. Swale Geometry a. Swale bottom width (b) b. Side slope (z) c. Flow direction slope (s)	b = 2 ft z = 3:1 s = 1%
3. Design flow velocity (Manning n = 0.2)	v = .061 ft/s
4. Depth of flow (D)	D = .42 ft
5. Design Length (L) L = (7 min) x (flow velocity, ft/sec) x 60	L = 25.62 ft
6. Vegetation (describe)	native grasses, landscaping
8. Outflow Collection (check type used or describe "other")	___ Grated Inlet' ___ Infiltration Trench ___ Underdrain ✓ Other stormdrain

Notes:
using 100' minimum.

PROPOSED E-3

UHS Temecula Medical Center

BMP Summary Spreadsheet

Ultimate
Hydrologic Subarea

* = To be calculated at time of ultimate BMP submittal package

E-3 ROUTES TO MWS I

SHEET FROM APPROVED WQMP REPORT

Outfall #1 West		Title	BMP
W-1		MWS B	Modular Wetlands Unit - 14' curb
W-2		Sand Filter A	Sand Filter Strip
W-3	*	Detention Basin B/ Sand filter C	Detention Basin/ Sand Filter Strip
W-4	*	Detention Basin C/ Sand filter D	Detention Basin/ Sand Filter Strip
W-5	*	Detention Basin D/ Sand Filter E	Detention Basin/ Sand Filter Strip
W-6	*	Detention Basin E/ Sand Filter F	Detention Basin/ Sand Filter Strip
W-7	*	Detention Basin F/ San Filter G	Detention Basin/ Sand Filter Strip
W-9		MWS A	Modular Wetlands Unit - 14' curb
W-10		Detention Basin A	Detention Basin
W-11		Sand Filter B	Sand Filter Strip
W-12		Detention Basin C	Detention Basin
W-13		Detention Basin C	Detention Basin
Outfall #3 East			
E-1	*	Swale B/detention basin C	Grass Swale/Detention basin
E-2	*	Detention basin C & sand filter I	Detention Basin/ sand strip
E-4		MSW E	Modular Wetlands Unit - 14' Curb
E-5		Basin A	Infiltration Basin
E-6		Rain Garden A	Rain Garden
E-7		Rain Garden B	Rain Garden
E-8		Strip D	Vegetative Strip
E-9		Rain Garden C	Rain Garden
E-10		Rain Garden D	Rain Garden
E-11		Rain Garden E	Rain Garden
E-12	*	Chamber/Rain Garden	Infiltration Chamber/Rain Garden

E-13		Swale A	Vegetative Swale
E-14		Strip E	Vegetative Strip
E-15		Rain Garden F	Rain Garden
E-16	*	Chamber /Rain Garden	Infiltration Chamber/ Rain Garden
E-17	*	Chamber	Infiltration Chamber
E-18	*	Chamber	infiltration Chamber
E-19	*	Chamber	Infiltration Chamber
E-20		MWS F	Modular Wetlands Unit - 14' grate
E-21	*	Chamber	Infiltration Chamber
E-22		MWS G	Modular Wetlands Unit - 22' grate
E-23		MWS C	Modular Wetlands Unit - 14' UG Curb
E-24	*	Chamber	Infiltration Chamber
E-25	*	Chamber	Infiltration Chamber
E-26		MWS E	Modular Wetlands Unit - 22' grate
E-27		MWS H	Modular Wetlands Unit - 14' grate
E-28		MWS D	Modular Wetlands Unit - 14' Curb
E-29	*	Chamber	Infiltration Chamber
E-30	*	Chamber	Infiltration Chamber
E-31	*	Chamber	Infiltration Chamber

SHEET FROM APPROVED WQMP REPORT

APPROVED CALCS FOR EXISTING MWS I (TO REMAIN)

Worksheet 2

Design Procedure Form for Design Flow

Uniform Intensity Design Flow

Designer: CYNTHIA GABALDON
Company: URS CORP
Date: 6/3/11
Project: UHS Temecula
Location: Temecula Ca E-4 MWS "I"

1. Determine Impervious Percentage		
a. Determine total tributary area	A_{total} = .84 acres	(1)
b. Determine Impervious %	i = 100 %	(2)
2. Determine Runoff Coefficient Values Use Table 4 and impervious % found in step 1		
a. A Soil Runoff Coefficient	C_a =	(3)
b. B Soil Runoff Coefficient	C_b = .90	(4)
c. C Soil Runoff Coefficient	C_c =	(5)
d. D Soil Runoff Coefficient	C_d =	(6)
3. Determine the Area decimal fraction of each soil type in tributary area		
a. Area of A Soil / (1) =	A_a =	(7)
b. Area of B Soil / (1) =	A_b = 1.0	(8)
c. Area of C Soil / (1) =	A_c =	(9)
d. Area of D Soil / (1) =	A_d =	(10)
4. Determine Runoff Coefficient		
a. C = (3)x(7) + (4)x(8) + (5)x(9) + (6)x(10) =	C = .90	(11)
5. Determine BMP Design flow		
a. Q_{BMP} = C x I x A = (11) x 0.2 x (1)	Q_{BMP} = .151 $\frac{ft^3}{s}$	(12)

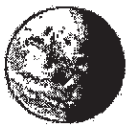
Worksheet 11

Design Procedure Form for Water Quality Inlets

Designer: CYNTHIA BABALDON
Company: URS CORP
Date: 6/3/11
Project: UHS Temecula
Location: Temecula, CA E-4 MWS "I"

1. Determine Design Flow Rate (Use Worksheet 2)	Q_{BMP} = .151 cfs Q_{100} = 2.9
2. Water Quality Inlet Manufacturer Name Model Flow Capacity of Model Please include a technical sheet from the manufacturer with information on this model.	Make MWS Model Linear Curb - 14' Capacity .15 cfs Bypass 2.9

Notes: MWS "I"



"Zach Kent"
<zkent@biocleanenvironmental .net>
12/14/2010 01:02 PM

To <Margie_De_Laurell@URSCorp.com>
cc <cynthia_gabaldon@urscorp.com>, <toni_gullace@urscorp.com>, <Lisa_Berman@URSCorp.com>, "John Hayden"
bcc
Subject RE: UHST - MWS, phase 1 DAM & BMP site plan

PHASE I

Hello Margie,

Attached are the updated drawings. Each drawing has under the title the drainage areas it applies to:

W-1 - MWS Linear - 14' Curb Type mws B

W-9 - MWS Linear - 14' Curb Type mws A

E-4 - MWS Linear - 14' Curb Type mws F

E-22 - MWS Linear - 22' Grate Type mws G

E-23 - MWS Linear - 14' UG Curb Type (this is an underground unit, meaning it has a solid concrete ADA compliant lid, so it can be placed under the sidewalk) mws C

E-28 - MWS Linear - 14' Curb Type mws D

E-38 - MWS Linear - 22' Grate Type mws E

E-39 - MWS Linear - 14' Grate Type mws F

E-40 - MWS Linear - 14' Grate Type mws H

We reviewed the Q100 and Qbmp flow rates for each area confirm the size and type of the system can treat and bypass flows appropriately. We assumed the treatment intensity is .2 in/hr.

All drawings have been changed to show 12" diameter outflow pipes.

Let us know if you need anything else.

Sincerely,

Zach J Kent, CISEC
Stormwater Engineer
zkent@biocleanenvironmental.com
zach@modularwetlands.com

Bio Clean Environmental Services, Inc.
Modular Wetland Systems, Inc.
P.O Box 869, Oceanside, CA 92049
Phone: 760.433.7640

MODULAR WETLAND SYSTEMS - LINEAR CURB TYPE(L)
WATERSHED W-1, W-9, E-4, AND E-28

MODULAR WETLANDS™

*FLOW BASED DESIGN

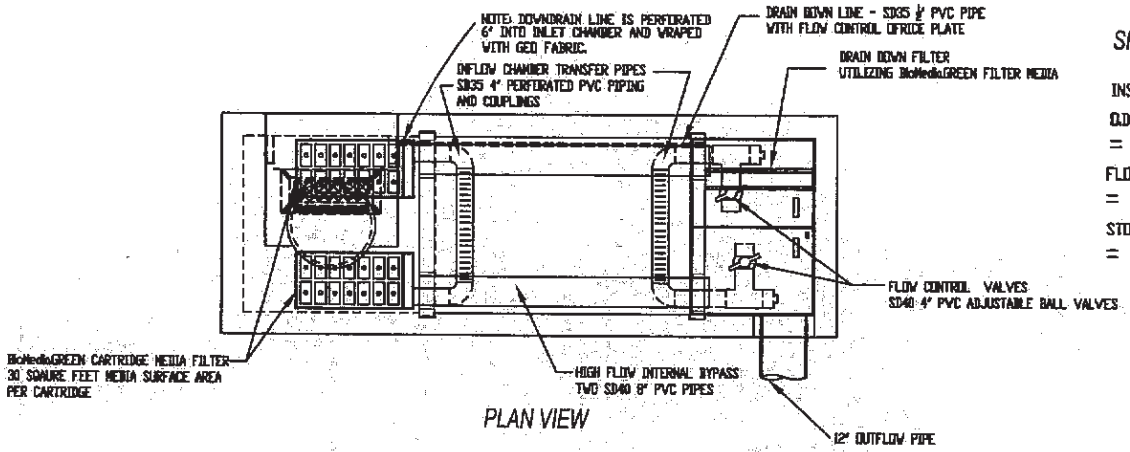
FLOW RATES

PRIMARY PEAK TREATMENT FLOW RATE
= .15 CFS OR 67 GPM

PEAK BYPASS FLOW RATE
= 2.90 CFS OR 1,302 GPM

CONFIGURATION NOTES

- INSTALL ONLINE IN FLOW BY CONDITION.
- CURB OPENING IN MODULAR WETLAND WILL BE THREE FEET WIDE. LOCAL DEPRESSION CAN VARY PER ENGINEER'S RECOMMENDATION.



PLAN VIEW

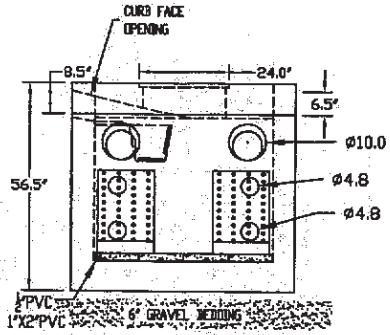
SPECIFICATIONS

INSTALL AT SURFACE

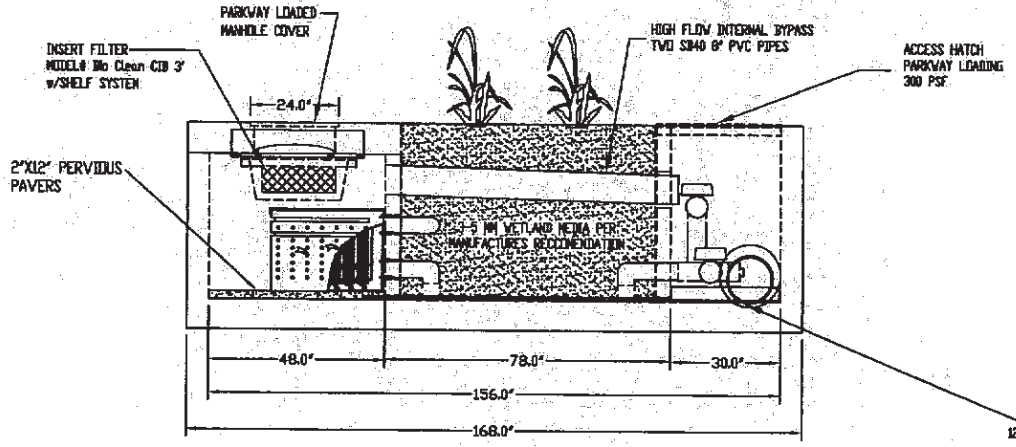
O.D. DIMENSIONS
= 14' X 5' X 4.71'

FLOW LINE (6" CURB) TO INVERT OUT
= 3.51'

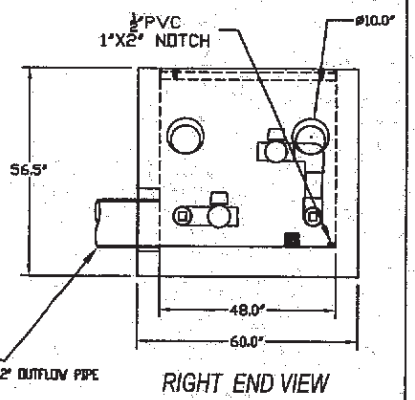
STORAGE CAPACITY
= 1000 LBS OR 23.5 CF



LEFT END VIEW



ELEVATION VIEW



RIGHT END VIEW

INSTALLATION NOTES:

1. INSTALL UNIT ON LEVEL BED OF GRAVEL OF AT LEAST 6" IN DEPTH.
2. CONCRETE 28 DAY COMPRESSIVE STRENGTH fc=5,000 PSI.
3. REINFORCING:ASTM A-615, GRADE 60.
4. RATED FOR PARKWAY LOADING 300 PSF.
5. ALL WALLS ARE 6" THICK, BAFFLES ARE 4" THICK BOTTOM 8" THICK, TOP 8.5" THICK.
6. JOINT SEALANT: BUTYL RUBBER SS-S-00210

Patent No. 7,425,262

MODULAR WETLAND SYSTEMS INC.
P.O. BOX 869
OCEANSIDE, CA 92049
www.ModularWetlands.com

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	NAME	DATE
DRAWN	D.R.F.	6-03-09
EDITED		

COMMENTS:
TEMECULA HOSPITAL

TITLE: MWS LINEAR - CURB TYPE

SIZE	DWG. NO.	REV
A	MWS-L-C	

SCALE 1:50 | UNITS = INCHES | SHEET 1 OF 1

PROPOSED E-4

SWALES:

Biofiltration Swale Calculation - Phase I

Design:

Water Quality Design Flow:

$Q_{BMP} = C \times I \times A$

Soil Type = B

Area	Acre	% Impervious	Runoff Coefficient[1]	Rainfall Intensity[1] (in/hr)	Q_{BMP} (cfs)	Minimum Swale Length (ft)	Design Swale Length (ft)	Length Check	Velocity of Swale (ft/s)
E-35	1.77	35	0.41	0.2	0.15	100	46	**OK – using at least min. design**	0.11
E-33	1.26	10	0.33	0.2	0.10	100	26	**OK – using at least min design**	0.06

1. Based on Table 4 from Riverside County Water Quality Management Plan

Swale ID:
E-35 = Swale A
E-33 = Swale B

Calculations based on WQMP Manual Worksheet 9

Worksheet 2

Design Procedure Form for Design Flow

Uniform Intensity Design Flow

Designer: CYNTHIA GABALDON

Company: URS CORP

Date: 6/3/11

Project: UHS TEMECULA

Location: Vegetative Swale "A" E-35

1. Determine Impervious Percentage		
a. Determine total tributary area	A_{total} = 1.77 acres	*(1)*
b. Determine Impervious %	i = 35 %	*(2)*
2. Determine Runoff Coefficient Values Use Table 4 and impervious % found in step 1		
a. A Soil Runoff Coefficient	C_a =	*(3)*
b. B Soil Runoff Coefficient	C_b = .41	*(4)*
c. C Soil Runoff Coefficient	C_c =	*(5)*
d. D Soil Runoff Coefficient	C_d =	*(6)*
3. Determine the Area decimal fraction of each soil type in tributary area		
a. Area of A Soil / *(1)* =	A_a =	*(7)*
b. Area of B Soil / *(1)* =	A_b = 1.0	*(8)*
c. Area of C Soil / *(1)* =	A_c =	*(9)*
d. Area of D Soil / *(1)* =	A_d =	*(10)*
4. Determine Runoff Coefficient		
a. C = *(3)*x*(7)* + *(4)*x*(8)* + *(5)*x*(9)* + *(6)*x*(10)* =	C = .41	*(11)*
5. Determine BMP Design flow		
a. Q_{BMP} = C x I x A = *(11)* x 0.2 x *(1)*	Q_{BMP} = .15 $\frac{ft^3}{s}$	*(12)*

Worksheet 9

Design Procedure Form for Grassed Swale

Designer: CYNTHIA GABALDON
Company: URS CORP
Date: 6/3/11
Project: VHS TEMECULA
Location: Vegetative Swale "A" E-35

1. Determine Design Flow (Use Worksheet 2)	Q_{BMP} = .15 cfs
2. Swale Geometry a. Swale bottom width (b) b. Side slope (z) c. Flow direction slope (s)	b = 2 ft z = 3:1 s = 12 %
3. Design flow velocity (Manning n = 0.2)	v = .11 ft/s
4. Depth of flow (D)	D = .42 ft
5. Design Length (L) L = (7 min) x (flow velocity, ft/sec) x 60	L = 46 ft
6. Vegetation (describe)	grasses
8. Outflow Collection (check type used or describe "other")	___ Grated Inlet' ___ Infiltration Trench ___ Underdrain ✓ Other stormdrain

Notes:
USING 100' minimum.

SWALE A WILL BE MOVED IN THE ULTIMATE PROPOSED CONDITION. A PROPOSED WALKWAY IS NOW IN THE EXISTING SWALE A. THEREFORE, THE SWALE WILL BE "MOVED" TO THE WEST AND RENAMED SWALE A1.

THE CALCULATION FOR SWALE A WILL NOT BE CHANGED FOR SWALE A1. THIS IS DUE TO THE FACT THAT THE NEW BASIN AREA (W-4) IS 1.32 ACRES AND THE EXISTING SWALE CALCULATION ACCOUNTS FOR A TOTAL OF 1.77 ACRES. THE FOLLOWING SHEETS PROVE THE SWALE SIZE MEETS THE REQUIREMENTS.

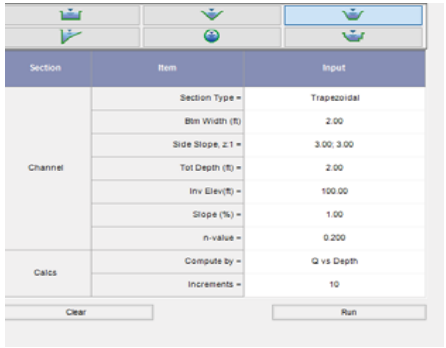
Table 4. Runoff Coefficients for an Intensity = 0.2 $^{in}/_{hr}$ for Urban Soil Types*

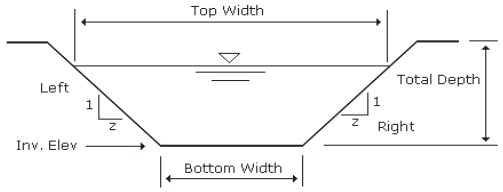
Impervious %	A Soil RI =32	B Soil RI =56	C Soil RI =69	D Soil RI =75
0 (Natural)	0.06	0.14	0.23	0.28
5	0.10	0.18	0.26	0.31
10	0.14	0.22	0.29	0.34
15	0.19	0.26	0.33	0.37
20 (1-Acre)	0.23	0.30	0.36	0.40
25	0.27	0.33	0.39	0.43
30	0.31	0.37	0.43	0.47
35	0.35	0.41	0.46	0.50
40 (1/2-Acre)	0.40	0.45	0.50	0.53
45	0.44	0.48	0.53	0.56
50 (1/4-Acre)	0.48	0.52	0.56	0.59
55	0.52	0.56	0.60	0.62
60	0.56	0.60	0.63	0.65
65 (Condominiums)	0.61	0.64	0.66	0.68
70	0.65	0.67	0.70	0.71
75 (Mobilehomes)	0.69	0.71	0.73	0.74
80 (Apartments)	0.73	0.75	0.77	0.78
85	0.77	0.79	0.80	0.81
90 (Commercial)	0.82	0.82	0.83	0.84
95	0.86	0.86	0.87	0.87
100	0.90	0.90	0.90	0.90

*Complete District's standards can be found in the Riverside County Flood Control Hydrology Manual

Vegetative Swale

				*						b	z	s				
Veg. Strip	Basin Name	Area (Acres)	% imp (i)	C	BORING LOG	A decimal	C	Qbmp (cfs)	Width	Side Slope	Slope	Mannings	Velocity	Length	Minimum Length	Vegetaion
SWALE A1	E-4	1.32	57.37	0.6	B-2	1	0.6	0.1584	2	3:1	1	0.2	See Express Calcs	92.4	100	GRASS





Trapezoidal Section

PROPOSED E-5

SEE STORM CHAMBER CALCULATION



Figure 2 Unit Storage Volume Graph

PROPOSED E-6

PROPOSED RAIN GARDEN G

SEE EXCEL SPREADHSEET CALCULATION

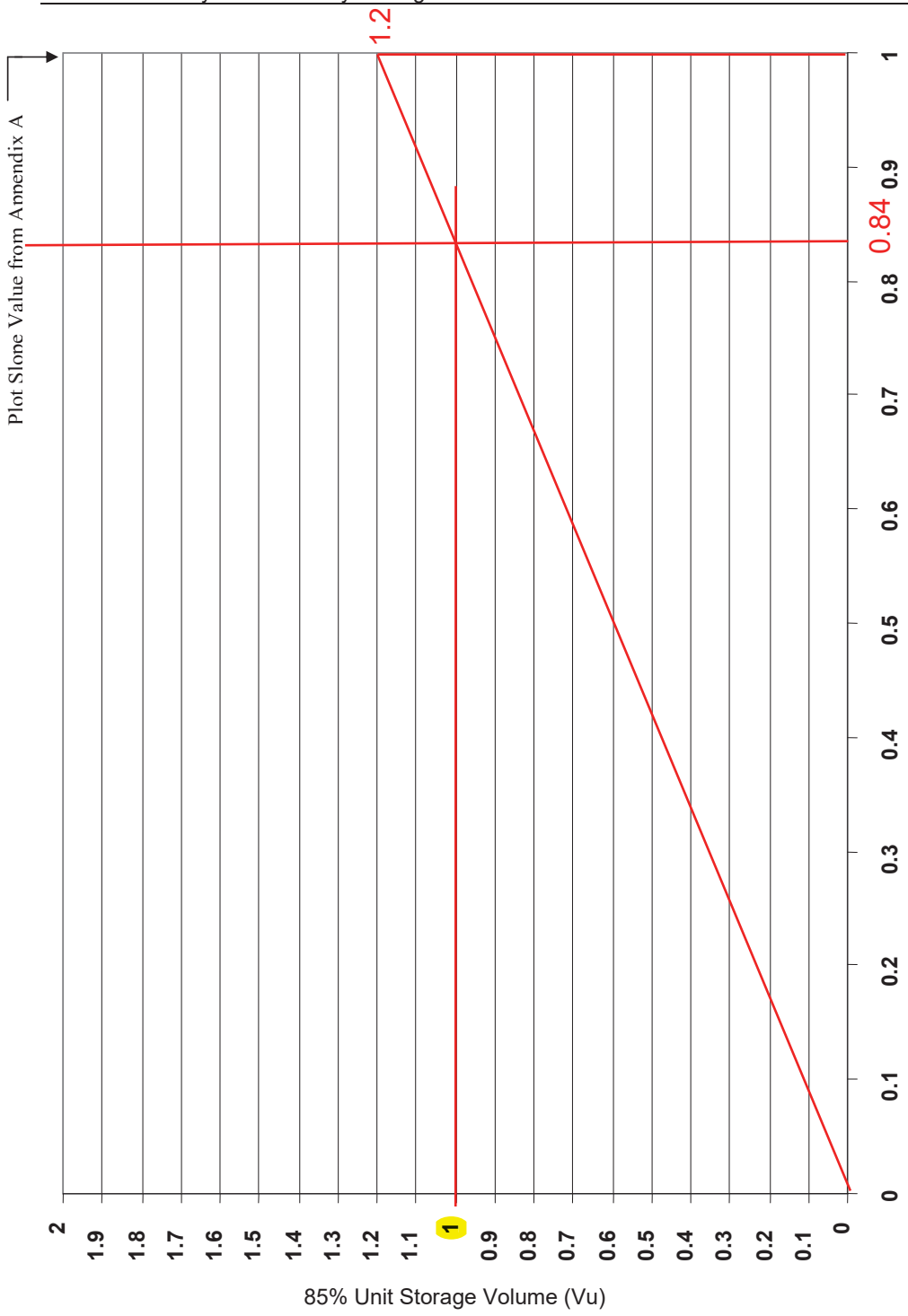


Figure 2 Unit Storage Volume Graph

PROPOSED E-7

EXISTING RAIN GARDEN B (TO REMAIN)

RAIN GARDENS:

Rain Garden Calculation – Phase 1 and Ultimate Buildout

Design Calculations:

$A_f = (WQ_V)\ (d_f) / [\ (k)\ (h_f + d_f)\ (t_f)]$

A_f = Surface area of filter bed (ft^2)	See Below	
d_f = filter bed depth (ft) =	4	
k = coefficient of permeability of filter media (ft/day)	30	(typical for fine to medium sand)
h_f = average height of water above filter bed (ft)	0	
t_f = design filter bed drain time (days)	1.67	

(1.67 days or 40 hours is recommended maximum for sand filters, 48 hours for bioretention)

Area	Acre	WQV (ft^3)	A_f (ft^2)	Rain Garden
E-6	0.20	770	16	**A**
E-7	0.16	610	12	**B**
E-9	0.53	2,047	42	**C**
E-10	0.57	2,193	44	**D**
E-11	0.43	1,654	33	**E**
E-15	0.54	2,078	42	**F**

E-7 BMP Area

Design Procedure for BMP Design Volume

85th percentile runoff event

RAINGARDEN "B"

Designer: Lisa Berman
Company: URS Corporation
Date: 11/02/2010
Project: UHS Temecula Hospital
Location: City of Temecula

1. Create Unit Storage Volume Graph a. Site location (Township, Range, and Section). b. Slope value from the Design Volume Curve in **Appendix A.** c. Plot this value on the Unit Storage Volume Graph shown on **Figure 2.** d. Draw a straight line form this point to the origin, to create the graph	T &R Section	*(1)*
	Slope = 1.2	*(2)*
	Is this graph attached? Yes ☐ No ☐	
2. Determine Runoff Coefficient a. Determine total impervious area	$A_{impervious}$ = 0.16 acres	*(5)*
b. Determine total tributary area	A_{total} = 0.16 acres	*(6)*
c. Determine Impervious fraction i = *(5)* / *(6)*	i = 1.0	*(7)*
d. Use *(7)* in **Figure 1** to find Runoff OR $C = .858i^3 - .78i^2 + .774i + .04$	C = 0.89	*(8)*
3. Determine 85% Unit Storage Volume a. Use *(8)* in **Figure 2** Draw a Vertical line from *(8)* to the graph, then a Horizontal line to the desired V_u value.	V_u = 1.06 in-acre / acre	*(9)*
4. Determine Design Storage Volume a. V_{BMP} = *(9)* x *(6)* [in- acres]	V_{BMP} = 0.17 in-acre	*(10)*
b. V_{BMP} = *(10)* / 12 [ft- acres]	V_{BMP} = 0.014 ft-acre	*(11)*
c. V_{BMP} = *(11)* x 43560 [ft^3]	V_{BMP} = 609.84 ft^3	*(12)*

Notes:

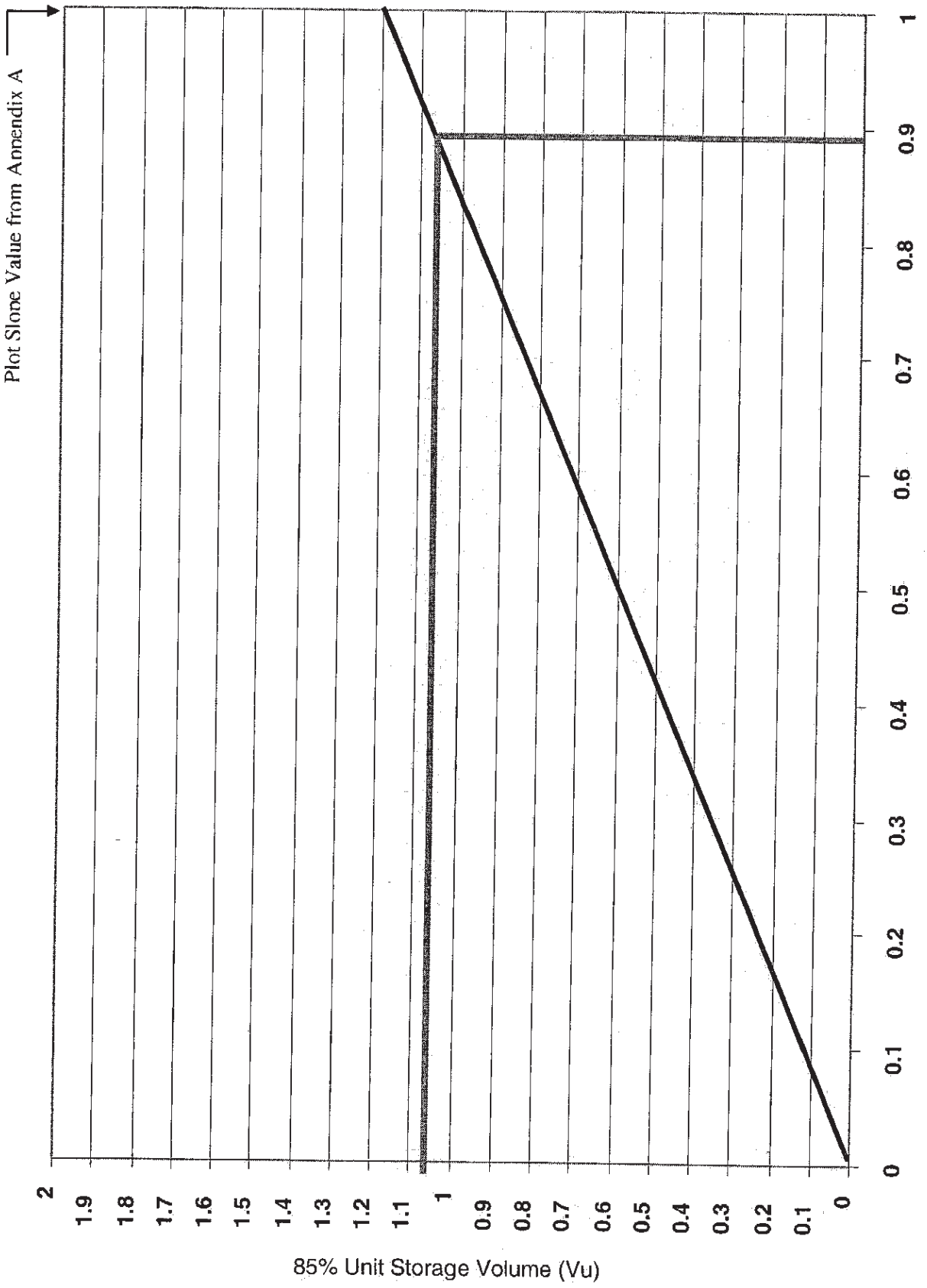


Figure 2 Unit Storage Volume Graph

PROPOSED E-8

VEGETATED STRIP D (TO REMAIN)
& E1 (TO MOVE)

Table 4. Runoff Coefficients for an Intensity = 0.2 $^{in}/_{hr}$ for Urban Soil Types*

Impervious %	A Soil RI =32	B Soil RI =56	C Soil RI =69	D Soil RI =75
0 (Natural)	0.06	0.14	0.23	0.28
5	0.10	0.18	0.26	0.31
10	0.14	0.22	0.29	0.34
15	0.19	0.26	0.33	0.37
20 (1-Acre)	0.23	0.30	0.36	0.40
25	0.27	0.33	0.39	0.43
30	0.31	0.37	0.43	0.47
35	0.35	0.41	0.46	0.50
40 (1/2-Acre)	0.40	0.45	0.50	0.53
45	0.44	0.48	0.53	0.56
50 (1/4-Acre)	0.48	0.52	0.56	0.59
55	0.52	0.56	0.60	0.62
60	0.56	0.60	0.63	0.65
65 (Condominiums)	0.61	0.64	0.66	0.68
70	0.65	0.67	0.70	0.71
75 (Mobilehomes)	0.69	0.71	0.73	0.74
80 (Apartments)	0.73	0.75	0.77	0.78
85	0.77	0.79	0.80	0.81
90 (Commercial)	0.82	0.82	0.83	0.84
95	0.86	0.86	0.87	0.87
100	0.90	0.90	0.90	0.90

*Complete District's standards can be found in the Riverside County Flood Control Hydrology Manual

Worksheet 2

Design Procedure Form for Design Flow

Uniform Intensity Design Flow

Designer: CYNTHIA GABALDON
Company: URS CORP
Date: 6/3/11
Project: UHS
Location: Temecula Ca E-8 Strip "D"

1. Determine Impervious Percentage		
a. Determine total tributary area	A_{total} = 1.38 acres	*(1)*
b. Determine Impervious %	i = 60 %	*(2)*
2. Determine Runoff Coefficient Values Use Table 4 and impervious % found in step 1		
a. A Soil Runoff Coefficient	C_a =	*(3)*
b. B Soil Runoff Coefficient	C_b = .60	*(4)*
c. C Soil Runoff Coefficient	C_c =	*(5)*
d. D Soil Runoff Coefficient	C_d =	*(6)*
3. Determine the Area decimal fraction of each soil type in tributary area		
a. Area of A Soil / *(1)* =	A_a =	*(7)*
b. Area of B Soil / *(1)* =	A_b = 1.0	*(8)*
c. Area of C Soil / *(1)* =	A_c =	*(9)*
d. Area of D Soil / *(1)* =	A_d =	*(10)*
4. Determine Runoff Coefficient		
a. C = *(3)*x*(7)* + *(4)*x*(8)* + *(5)*x*(9)* + *(6)*x*(10)* =	C = .60	*(11)*
5. Determine BMP Design flow		
a. Q_{BMP} = C x I x A = *(11)* x 0.2 x *(1)*	Q_{BMP} = .046 $\frac{ft^3}{s}$	*(12)*

Worksheet 10

Design Procedure Form for Filter Strip

Designer: CYNTHIA GABALDON
Company: URS CORP.
Date: 6/3/11
Project: CHS
Location: Temecula, Ca E-8

1. Determine Design Flow (Use Worksheet 2)	Q_{BMP} = 1.046 cfs
2. Design Width $W_m = (Q_{BMP})/0.005$ cfs/ft	W_m = 9 ft
3. Design Length (15 ft minimum)	L_m = 30 ft
4. Design Slope (4 % maximum)	S_D = 2.0 %
5. Flow Distribution (check type used or describe "other")	✓ slotted curbing ___ Modular Block Porous Pavement ___ Level Spreader ✓ other
6. Vegetation (describe)	grasses
5. Outflow Collection (check type used or describe "other")	___ Grass Swale ___ Street Gutter ✓ Storm Drain ___ Underdrain ___ Other

Notes: Strip "D"

Worksheet 2

Design Procedure Form for Design Flow

Uniform Intensity Design Flow

Designer: CYNTHIA GABALDON
Company: URS, CORP
Date: 6/3/11
Project: VHS
Location: Temecula Hosp E-14 Strip E

1. Determine Impervious Percentage		
a. Determine total tributary area	A_{total} = .83 acres	*(1)*
b. Determine Impervious %	i = 80 %	*(2)*
2. Determine Runoff Coefficient Values Use Table 4 and impervious % found in step 1		
a. A Soil Runoff Coefficient	C_a =	*(3)*
b. B Soil Runoff Coefficient	C_b = .75	*(4)*
c. C Soil Runoff Coefficient	C_c =	*(5)*
d. D Soil Runoff Coefficient	C_d =	*(6)*
3. Determine the Area decimal fraction of each soil type in tributary area		
a. Area of A Soil / *(1)* =	A_a =	*(7)*
b. Area of B Soil / *(1)* =	A_b = 1.0	*(8)*
c. Area of C Soil / *(1)* =	A_c =	*(9)*
d. Area of D Soil / *(1)* =	A_d =	*(10)*
4. Determine Runoff Coefficient		
a. C = *(3)*x*(7)* + *(4)*x*(8)* + *(5)*x*(9)* + *(6)*x*(10)* =	C = .75	*(11)*
5. Determine BMP Design flow		
a. Q_{BMP} = C x I x A = *(11)* x 0.2 x *(1)*	Q_{BMP} = .12 $\frac{ft^3}{s}$	*(12)*

Worksheet 10

Design Procedure Form for Filter Strip

Designer: CYNTHIA GABALDON
Company: URS CORP
Date: 6/3/11
Project: VHS
Location: Temecula Hosp E-14

1. Determine Design Flow (Use Worksheet 2)	Q_{BMP} = .12 cfs
2. Design Width $W_m = (Q_{BMP})/0.005$ cfs/ft	W_m = 25 ft
3. Design Length (15 ft minimum)	L_m = 30 ft
4. Design Slope (4 % maximum)	S_D = 2.0 %
5. Flow Distribution (check type used or describe "other")	___ slotted curbing ___ Modular Block Porous Pavement ___ Level Spreader ✓ other
6. Vegetation (describe)	grasses
5. Outflow Collection (check type used or describe "other")	___ Grass Swale ___ Street Gutter ✓ Storm Drain ___ Underdrain ___ Other

Notes: Strip E

EXISTING AREA TOTAL = 1.21 ACRES
(.38+.83=1.21 ACRES)

PROPOSED AREA TOTAL = 1.3 ACRES
(W-8)

EXISTING STRIPS WILL KEEP THE SAME CONFIGURATION BUT E WILL BE PLACED IN A DIFFERENT SPOT. (PROPOSED AREA IS NOW COVERD BY IMPERVIOUS AREA, THEREFORE, STRIP WILL BE MOVED TO THE LEFT/WEST)SEE DMA MAP FOR NEW LOCATION AND OLD LOCATION

THIS "NEW" STRIP WILL BE NAMED E1.

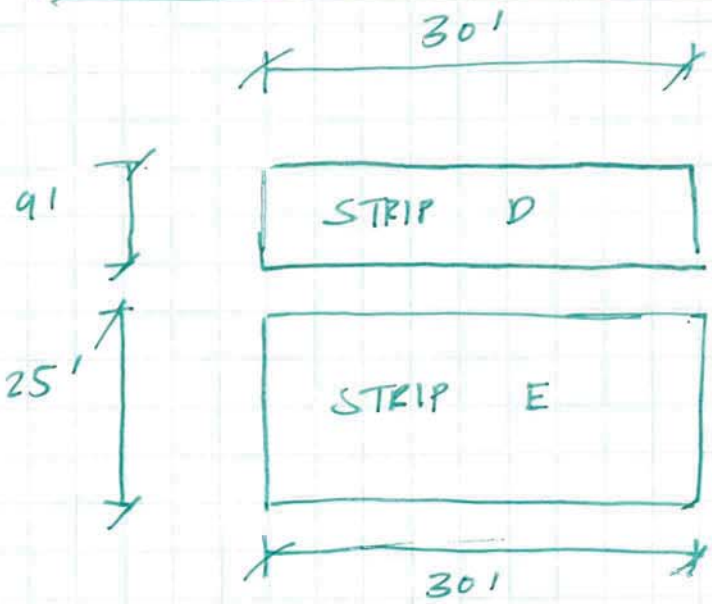
SEE FOLLOWING SHEETS FOR MORE INFORMATION ON THE CALCUALTIONS.

Vegetative Strip

Veg. Strip	Basin Name	Area (Acres)	% imp (i)	C**	BORING LOG	A decimal	C	Qbmp (cfs)	Width (ft)	Length (ft) *	Sd (%)
VEGETATED STRIP D1+E1	E-8	1.3	74.06	0.75	B-2	1	**0.75**	**0.195**	**39**	**15**	**2**

Notes:
* 15' Minimum
** Table 4

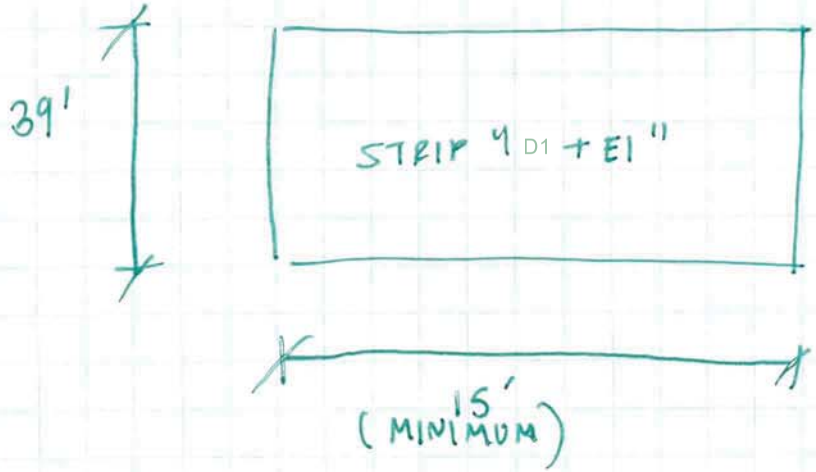
EXISTING VEGETATED STRIP D & E — NOT TO SCALE



TOTAL WIDTH = 34'

AREA TOTAL = 1.21 ACRES

PROPOSED VEGETATED STRIP "D1+E1" — NOT TO SCALE



TOTAL AREA = 1.3 ACRES W-8

STRIP D & E HAVE A LENGTH BEYOND 15' MINIMUM, THEREFORE, THEY ARE OVERSIZED.

FURTHERMORE, STRIP "D1+E1" WILL KEEP THE SAME D+E CONFIGURATION AND NOT THE NEW CALCULATED CONFIGURATION TO THE LEFT.

THE PREVIOUS OVERSIZING ACCOUNTS FOR THE BIGGER DMA AREA [E-8 = 1.3 ACRES]

PROPOSED E-9

SEE STORM CHAMBER CALCULATION

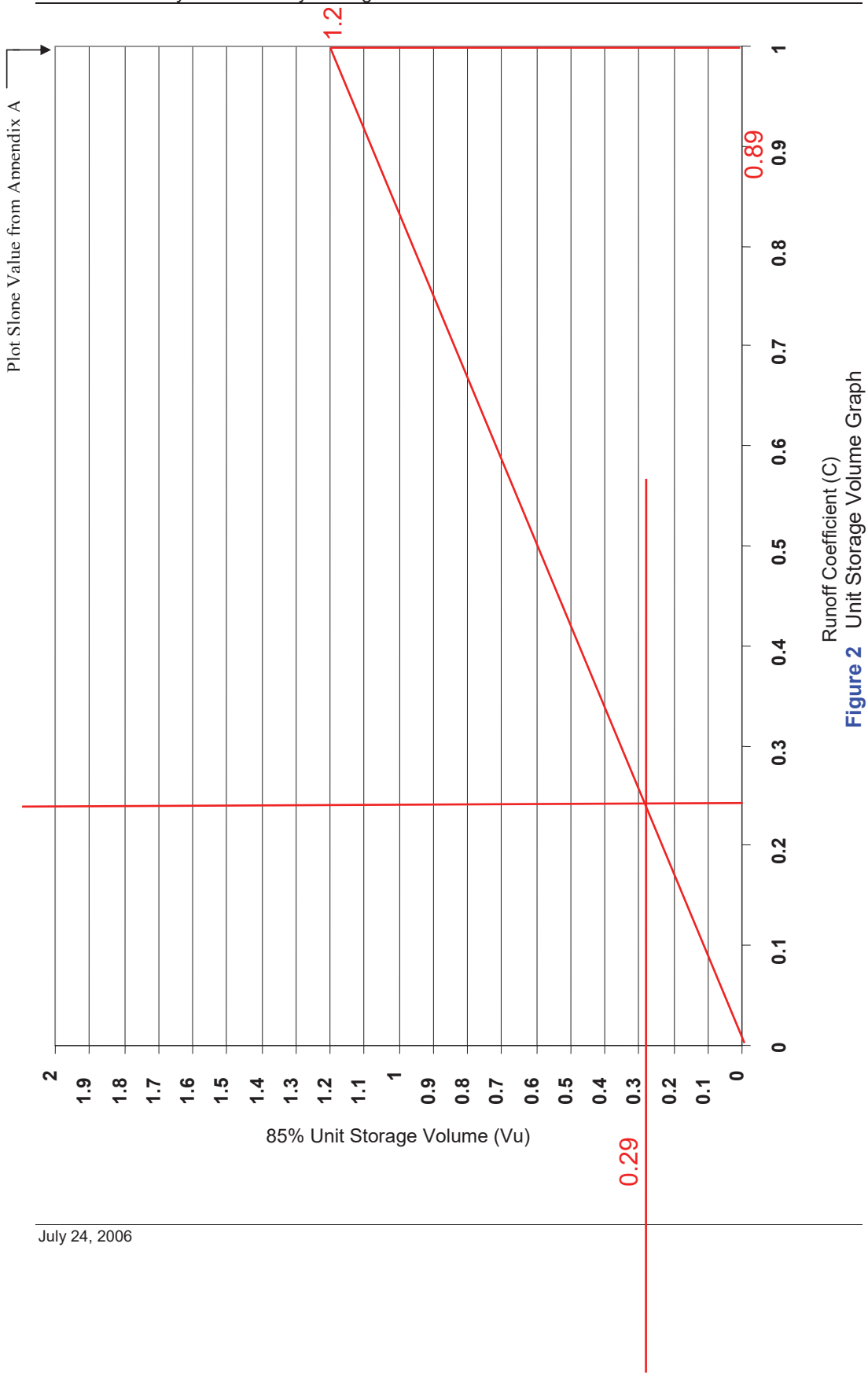


Figure 2 Unit Storage Volume Graph

PROPOSED E-11
E-10

SEE EXCEL SHEET CALCULATION

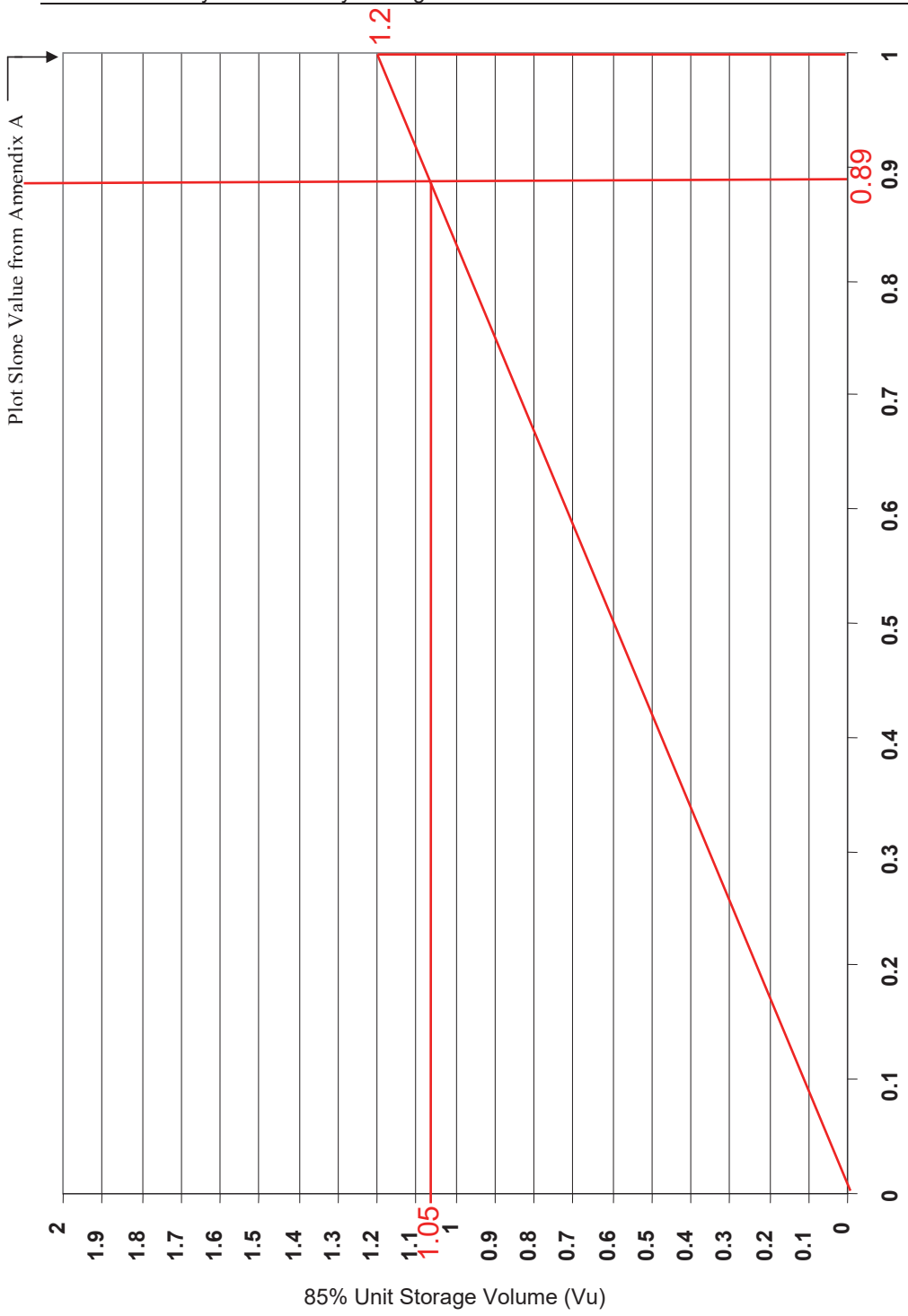


Figure 2 Unit Storage Volume Graph

PROPOSED E-12

PROPOSED E-12
MWS J

SEE EXCEL SHEET CALCULATION

PROPOSED E-12
MWS K

SEE EXCEL SHEET CALCULATION

PROPOSED E-12 MWS L

SEE EXCEL SHEET CALCULATION

PROPOSED E-12 MWS M

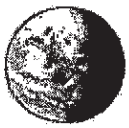
SEE EXCEL SHEET CALCULATION

PROPOSED E-12 MWS N

SEE EXCEL SHEET CALCULATION

PROPOSED E-13

NO CHANGES-EXISTING CONDITION



"Zach Kent"
<zkent@biocleanenvironmental .net>
12/14/2010 01:02 PM

To <Margie_De_Laurell@URSCorp.com>
cc <cynthia_gabaldon@urscorp.com>, <toni_gullace@urscorp.com>, <Lisa_Berman@URSCorp.com>, "John Hayden"
bcc
Subject RE: UHST - MWS, phase 1 DAM & BMP site plan

PHASE I

Hello Margie,

Attached are the updated drawings. Each drawing has under the title the drainage areas it applies to:

W-1 - MWS Linear - 14' Curb Type MWS B

W-9 - MWS Linear - 14' Curb Type MWS A

E-4 - MWS Linear - 14' Curb Type MWS F

E-22 - MWS Linear - 22' Grate Type MWS G

E-23 - MWS Linear - 14' UG Curb Type (this is an underground unit, meaning it has a solid concrete ADA compliant lid, so it can be placed under the sidewalk) MWS C

E-28 - MWS Linear - 14' Curb Type MWS D

E-38 - MWS Linear - 22' Grate Type MWS E

E-39 - MWS Linear - 14' Grate Type MWS F

E-40 - MWS Linear - 14' Grate Type MWS H

We reviewed the Q100 and Qbmp flow rates for each area confirm the size and type of the system can treat and bypass flows appropriately. We assumed the treatment intensity is .2 in/hr.

All drawings have been changed to show 12" diameter outflow pipes.

Let us know if you need anything else.

Sincerely,

Zach J Kent, CISEC
Stormwater Engineer
zkent@biocleanenvironmental.com
zach@modularwetlands.com

Bio Clean Environmental Services, Inc.
Modular Wetland Systems, Inc.
P.O Box 869, Oceanside, CA 92049
Phone: 760.433.7640

Worksheet 2

Design Procedure Form for Design Flow

Uniform Intensity Design Flow

Designer: CYNTHIA GABALDON
Company: URS CORP
Date: 6/3/11
Project: UHS
Location: Temecula, Ca E-23 MWS C

1. Determine Impervious Percentage		
a. Determine total tributary area	A_{total} = .78 acres	(1)
b. Determine Impervious %	i = 100 %	(2)
2. Determine Runoff Coefficient Values Use Table 4 and impervious % found in step 1		
a. A Soil Runoff Coefficient	C_a =	(3)
b. B Soil Runoff Coefficient	C_b = .90	(4)
c. C Soil Runoff Coefficient	C_c =	(5)
d. D Soil Runoff Coefficient	C_d =	(6)
3. Determine the Area decimal fraction of each soil type in tributary area		
a. Area of A Soil / (1) =	A_a =	(7)
b. Area of B Soil / (1) =	A_b = 1.0	(8)
c. Area of C Soil / (1) =	A_c =	(9)
d. Area of D Soil / (1) =	A_d =	(10)
4. Determine Runoff Coefficient		
a. C = (3)x(7) + (4)x(8) + (5)x(9) + (6)x(10) =	C = .90	(11)
5. Determine BMP Design flow		
a. Q_{BMP} = C x I x A = (11) x 0.2 x (1)	Q_{BMP} = .086 $\frac{ft^3}{s}$	(12)

Worksheet 11

Design Procedure Form for Water Quality Inlets

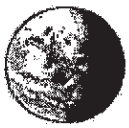
Designer: CYNTHIA GABALDON
Company: URS CORP
Date: 6/3/11
Project: UHS
Location: Temecula, Ca E-23

1. Determine Design Flow Rate (Use Worksheet 2)	Q_{BMP} = .086 cfs Q100 = 1.7
2. Water Quality Inlet Manufacturer Name Model Flow Capacity of Model Please include a technical sheet from the manufacturer with information on this model.	Make MWS Model Linear V6-curb Capacity .15 cfs Bypass=2.9

Notes: MWS C

PROPOSED E-14

NO CHANGES-EXISTING CONDITION



"Zach Kent"
<zkent@biocleanenvironmental .net>
12/14/2010 01:02 PM

To <Margie_De_Laurell@URSCorp.com>
cc <cynthia_gabaldon@urscorp.com>, <toni_gullace@urscorp.com>, <Lisa_Berman@URSCorp.com>, "John Hayden"
bcc
Subject RE: UHST - MWS, phase 1 DAM & BMP site plan

PHASE I

Hello Margie,

Attached are the updated drawings. Each drawing has under the title the drainage areas it applies to:

W-1 - MWS Linear - 14' Curb Type MWS B

W-9 - MWS Linear - 14' Curb Type MWS A

E-4 - MWS Linear - 14' Curb Type MWS F

E-22 - MWS Linear - 22' Grate Type MWS G

E-23 - MWS Linear - 14' UG Curb Type (this is an underground unit, meaning it has a solid concrete ADA compliant lid, so it can be placed under the sidewalk) MWS C

E-28 - MWS Linear - 14' Curb Type MWS D

E-38 - MWS Linear - 22' Grate Type MWS E

E-39 - MWS Linear - 14' Grate Type MWS F

E-40 - MWS Linear - 14' Grate Type MWS H

We reviewed the Q100 and Qbmp flow rates for each area confirm the size and type of the system can treat and bypass flows appropriately. We assumed the treatment intensity is .2 in/hr.

All drawings have been changed to show 12" diameter outflow pipes.

Let us know if you need anything else.

Sincerely,

Zach J Kent, CISEC
Stormwater Engineer
zkent@biocleanenvironmental.com
zach@modularwetlands.com

Bio Clean Environmental Services, Inc.
Modular Wetland Systems, Inc.
P.O Box 869, Oceanside, CA 92049
Phone: 760.433.7640

Worksheet 2

Design Procedure Form for Design Flow

Uniform Intensity Design Flow

Designer: CYNTHIA GABALDON
Company: VRS LORD
Date: 6/3/11
Project: VHS TEMECULA
Location: Temecula, Ca E-28 MWS "D"

1. Determine Impervious Percentage		
a. Determine total tributary area	A_{total} = .21 acres	*(1)*
b. Determine Impervious %	i = 100 %	*(2)*
2. Determine Runoff Coefficient Values Use Table 4 and impervious % found in step 1		
a. A Soil Runoff Coefficient	C_a =	*(3)*
b. B Soil Runoff Coefficient	C_b = .90	*(4)*
c. C Soil Runoff Coefficient	C_c =	*(5)*
d. D Soil Runoff Coefficient	C_d =	*(6)*
3. Determine the Area decimal fraction of each soil type in tributary area		
a. Area of A Soil / *(1)* =	A_a =	*(7)*
b. Area of B Soil / *(1)* =	A_b = 1.0	*(8)*
c. Area of C Soil / *(1)* =	A_c =	*(9)*
d. Area of D Soil / *(1)* =	A_d =	*(10)*
4. Determine Runoff Coefficient		
a. C = *(3)*x*(7)* + *(4)*x*(8)* + *(5)*x*(9)* + *(6)*x*(10)* =	C = .90	*(11)*
5. Determine BMP Design flow		
a. Q_{BMP} = C x I x A = *(11)* x 0.2 x *(1)*	Q_{BMP} = .038 $\frac{ft^3}{s}$	*(12)*

Worksheet 11

Design Procedure Form for Water Quality Inlets

Designer: CYNTHIA GABALDON
Company: URS CORP
Date: 6/3/11
Project: VHS Temecula
Location: Temecula, Ca E-28

1. Determine Design Flow Rate (Use Worksheet 2)	Q_{BMP} = .038 cfs Q100 = 0.9
2. Water Quality Inlet Manufacturer Name Model Flow Capacity of Model Please include a technical sheet from the manufacturer with information on this model.	Make MWS Model Linear Curb - 14' Capacity .15 cfs Bypass 2.9

Notes: MWS "D"

PROPOSED E-15

NEW DMA AREA GOING TO EXISTING MWS E,F,G,H 3.67 ACRES
136,416 SF OF IMPERVIOUS
3.79 ACRES

0.81+0.58+1.22+1.06 = 3.67 ACRES
100% IMP.

Worksheet 2

Design Procedure Form for Design Flow

Uniform Intensity Design Flow

Designer: CYNTHIA GABALDON
Company: URS CORP.
Date: 6/3/11
Project: VHS
Location: Temecula, Ca E-39 MWS "F"

1. Determine Impervious Percentage		
a. Determine total tributary area	A_{total} = .81 acres	*(1)*
b. Determine Impervious %	i = 100 %	*(2)*
2. Determine Runoff Coefficient Values Use Table 4 and impervious % found in step 1		
a. A Soil Runoff Coefficient	C_a =	*(3)*
b. B Soil Runoff Coefficient	C_b = .90	*(4)*
c. C Soil Runoff Coefficient	C_c =	*(5)*
d. D Soil Runoff Coefficient	C_d =	*(6)*
3. Determine the Area decimal fraction of each soil type in tributary area		
a. Area of A Soil / *(1)* =	A_a =	*(7)*
b. Area of B Soil / *(1)* =	A_b = 1.0	*(8)*
c. Area of C Soil / *(1)* =	A_c =	*(9)*
d. Area of D Soil / *(1)* =	A_d =	*(10)*
4. Determine Runoff Coefficient		
a. C = *(3)*x*(7)* + *(4)*x*(8)* + *(5)*x*(9)* + *(6)*x*(10)* =	C = .9	*(11)*
5. Determine BMP Design flow		
a. Q_{BMP} = C x I x A = *(11)* x 0.2 x *(1)*	Q_{BMP} = .145 $\frac{ft^3}{s}$	*(12)*

Worksheet 11

Design Procedure Form for Water Quality Inlets

Designer: CYNTHIA GABALDON
Company: VRS, CORP
Date: 6/3/11
Project: VHS
Location: Temecula, Ca E-39

1. Determine Design Flow Rate (Use Worksheet 2)	Q_{BMP} = .145 cfs Q100 = 3.7 cfs
2. Water Quality Inlet Manufacturer Name Model Flow Capacity of Model Please include a technical sheet from the manufacturer with information on this model.	Make MWS Model Linear Grate 14' Capacity .15 cfs Bypass = 4.28

Notes: MWS "F"

Worksheet 2

Design Procedure Form for Design Flow

Uniform Intensity Design Flow

Designer: CYNTHIA GABALDON
Company: URS CORP.
Date: 6/3/11
Project: UHS
Location: Temecula, Ca

E-10
MWS H

1. Determine Impervious Percentage		
a. Determine total tributary area	A_{total} = 1.58 acres	*(1)*
b. Determine Impervious %	i = 100 %	*(2)*
2. Determine Runoff Coefficient Values Use Table 4 and impervious % found in step 1		
a. A Soil Runoff Coefficient	C_a =	*(3)*
b. B Soil Runoff Coefficient	C_b = .90	*(4)*
c. C Soil Runoff Coefficient	C_c =	*(5)*
d. D Soil Runoff Coefficient	C_d =	*(6)*
3. Determine the Area decimal fraction of each soil type in tributary area		
a. Area of A Soil / *(1)* =	A_a =	*(7)*
b. Area of B Soil / *(1)* =	A_b = 1.0	*(8)*
c. Area of C Soil / *(1)* =	A_c =	*(9)*
d. Area of D Soil / *(1)* =	A_d =	*(10)*
4. Determine Runoff Coefficient		
a. C = *(3)*x*(7)* + *(4)*x*(8)* + *(5)*x*(9)* + *(6)*x*(10)* =	C = .90	*(11)*
5. Determine BMP Design flow		
a. Q_{BMP} = C x I x A = *(11)* x 0.2 x *(1)*	Q_{BMP} = .104 $\frac{ft^3}{s}$	*(12)*

Worksheet 11

Design Procedure Form for Water Quality Inlets

Designer: CYNTHIA GABALDON
Company: URS CORP
Date: 6/3/11
Project: VHS
Location: Temecula, Ca E-40

1. Determine Design Flow Rate (Use Worksheet 2)	Q_{BMP} = .104 cfs
2. Water Quality Inlet Manufacturer Name Model Flow Capacity of Model Please include a technical sheet from the manufacturer with information on this model.	Make MWS Model Linear Grate-141 Capacity .15 cfs Bypass = 1.28

Notes:

MWS H

Worksheet 2

Design Procedure Form for Design Flow

Uniform Intensity Design Flow

Designer: CYNTHIA GABALDON
Company: URS CORP
Date: 6/3/11
Project: UHS
Location: Temecula, Ca E-22 MWS G

1. Determine Impervious Percentage		
a. Determine total tributary area	A_{total} = 1.22 acres	*(1)*
b. Determine Impervious %	i = 100 %	*(2)*
2. Determine Runoff Coefficient Values Use Table 4 and impervious % found in step 1		
a. A Soil Runoff Coefficient	C_a =	*(3)*
b. B Soil Runoff Coefficient	C_b = .90	*(4)*
c. C Soil Runoff Coefficient	C_c =	*(5)*
d. D Soil Runoff Coefficient	C_d =	*(6)*
3. Determine the Area decimal fraction of each soil type in tributary area		
a. Area of A Soil / *(1)* =	A_a =	*(7)*
b. Area of B Soil / *(1)* =	A_b = 1.0	*(8)*
c. Area of C Soil / *(1)* =	A_c =	*(9)*
d. Area of D Soil / *(1)* =	A_d =	*(10)*
4. Determine Runoff Coefficient		
a. C = *(3)*x*(7)* + *(4)*x*(8)* + *(5)*x*(9)* + *(6)*x*(10)* =	C = .90	*(11)*
5. Determine BMP Design flow		
a. Q_{BMP} = C x I x A = *(11)* x 0.2 x *(1)*	Q_{BMP} = .219 $\frac{ft^3}{s}$	*(12)*

Worksheet 11

Design Procedure Form for Water Quality Inlets

Designer: CYNTHIA GABALDON
Company: URS CORP
Date: 6/3/11
Project: VHS
Location: Temecula, Ca E-22

1. Determine Design Flow Rate (Use Worksheet 2)	Q_{BMP} = .219 cfs Q_{100} = 4.5
2. Water Quality Inlet Manufacturer Name Model Flow Capacity of Model Please include a technical sheet from the manufacturer with information on this model.	Make MWS Model Linear Grate - 221 Capacity .29 cfs Bypass = 4.51

Notes:

MWS "G"

Worksheet 2

Design Procedure Form for Design Flow

Uniform Intensity Design Flow

Designer: CYNTHIA GABALDON
Company: URS CORP
Date: 6/3/11
Project: VHS
Location: Temecula, Ca E-38 EIWS-E

1. Determine Impervious Percentage		
a. Determine total tributary area	A_{total} = 1.06 acres	(1)
b. Determine Impervious %	i = 100 %	(2)
2. Determine Runoff Coefficient Values Use Table 4 and impervious % found in step 1		
a. A Soil Runoff Coefficient	C_a =	(3)
b. B Soil Runoff Coefficient	C_b = .90	(4)
c. C Soil Runoff Coefficient	C_c =	(5)
d. D Soil Runoff Coefficient	C_d =	(6)
3. Determine the Area decimal fraction of each soil type in tributary area		
a. Area of A Soil / (1) =	A_a =	(7)
b. Area of B Soil / (1) =	A_b = 1.0	(8)
c. Area of C Soil / (1) =	A_c =	(9)
d. Area of D Soil / (1) =	A_d =	(10)
4. Determine Runoff Coefficient		
a. C = (3)x(7) + (4)x(8) + (5)x(9) + (6)x(10) =	C = .90	(11)
5. Determine BMP Design flow		
a. Q_{BMP} = C x I x A = (11) x 0.2 x (1)	Q_{BMP} = .191 $\frac{ft^3}{s}$	(12)

Worksheet 11

Design Procedure Form for Water Quality Inlets

Designer: CYNTHIA GABALDON
Company: URS CORP
Date: 6/3/11
Project: VHS
Location: Temecula, Ca E-38

1. Determine Design Flow Rate (Use Worksheet 2)	Q_{BMP} = 1.91 cfs Q_{100} = n.i.
2. Water Quality Inlet Manufacturer Name Model Flow Capacity of Model Please include a technical sheet from the manufacturer with information on this model.	Make MWS Model Linear Grate Capacity 1.29 cfs Bypass = 4.51 cfs.

Notes:

MWS E

PROPOSED E-16

SEE STORM CHAMBER CALCULATION

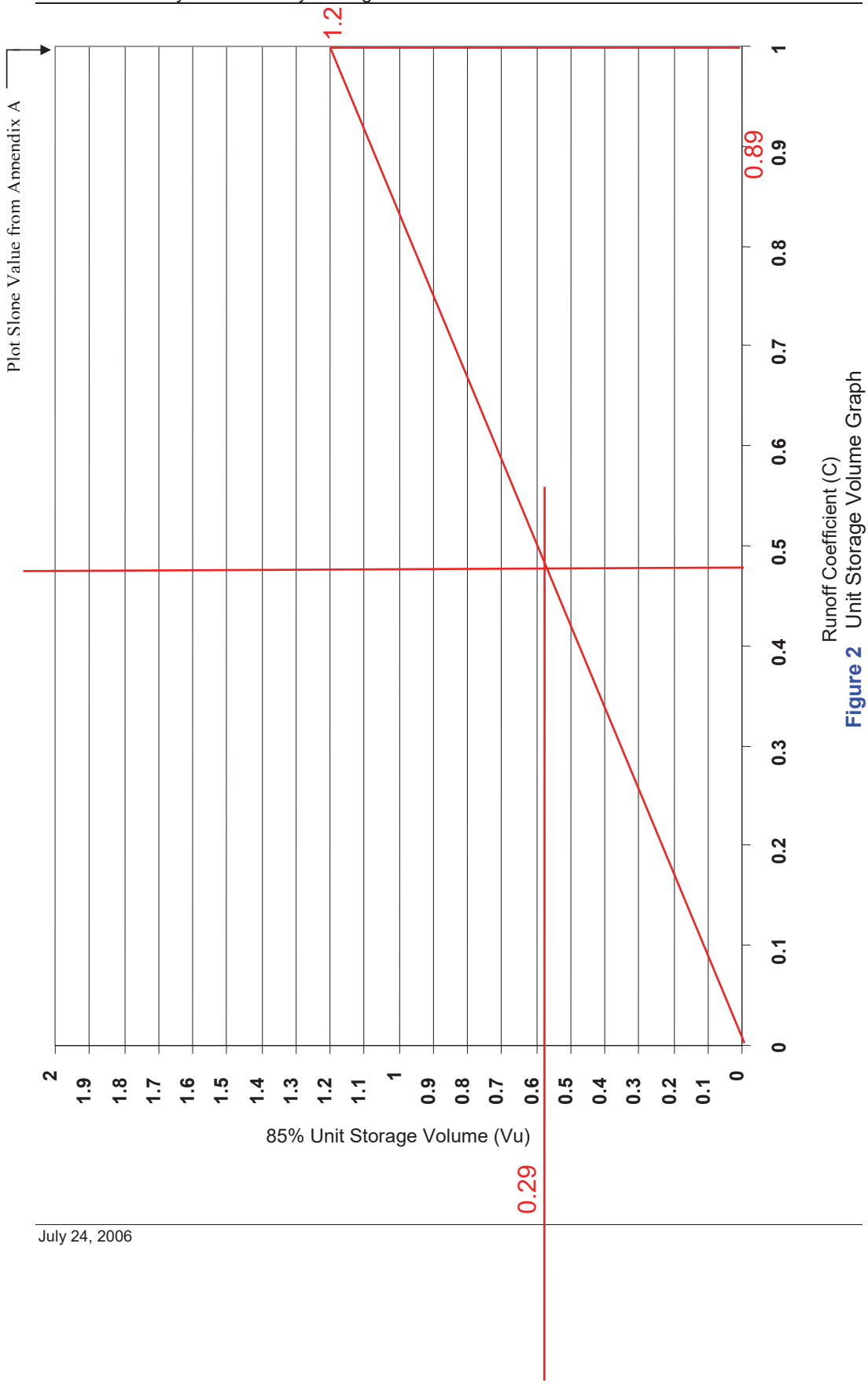


Figure 2 Unit Storage Volume Graph

PROPOSED E-17

EXISTING RAIN GARDEN A (TO REMAIN)

RAIN GARDENS:

Rain Garden Calculation – Phase 1 and Ultimate Buildout

Design Calculations:

$A_f = (WQ_V)\ (d_f) / [\ (k)\ (h_f + d_f)\ (t_f)]$

A_f = Surface area of filter bed (ft^2)	See Below	
d_f = filter bed depth (ft) =	4	
k = coefficient of permeability of filter media (ft/day)	30	(typical for fine to medium sand)
h_f = average height of water above filter bed (ft)	0	
t_f = design filter bed drain time (days)	1.67	

(1.67 days or 40 hours is recommended maximum for sand filters, 48 hours for bioretention)

Area	Acre	WQV (ft^3)	A_f (ft^2)	Rain Garden
E-6	0.20	770	16	**A**
E-7	0.16	610	12	**B**
E-9	0.53	2,047	42	**C**
E-10	0.57	2,193	44	**D**
E-11	0.43	1,654	33	**E**
E-15	0.54	2,078	42	**F**

E-6 BMP Area

Design Procedure for BMP Design Volume

RAIN GARDEN "A"

85th percentile runoff event

Designer: Cynthia Gabaldon
Company: URS Corporation
Date: 12/28/2010
Project: UHS Temecula Hospital
Location: City of Temecula

1. Create Unit Storage Volume Graph a. Site location (Township, Range, and Section). b. Slope value from the Design Volume Curve in **Appendix A**. c. Plot this value on the Unit Storage Volume Graph shown on **Figure 2.** d. Draw a straight line form this point to the origin, to create the graph	T - &R Section	*(1)*
	Slope = 1.2	*(2)*
	Is this graph attached? Yes ☐ No ☐	
2. Determine Runoff Coefficient a. Determine total impervious area	$A_{impervious}$ = 0.20 acres	*(5)*
b. Determine total tributary area	A_{total} = 0.20 acres	*(6)*
c. Determine Impervious fraction i = *(5)* / *(6)*	i = 1.0	*(7)*
d. Use *(7)* in **Figure 1** to find Runoff OR $C = .858i^3 - .78i^2 + .774i + .04$	C = 0.89	*(8)*
3. Determine 85% Unit Storage Volume a. Use *(8)* in **Figure 2** Draw a Vertical line from *(8)* to the graph, then a Horizontal line to the desired V_u value.	V_u = 1.06 in-acre / acre	*(9)*
4. Determine Design Storage Volume a. V_{BMP} = *(9)* x *(6)* [in- acres]	V_{BMP} = 0.212 in-acre	*(10)*
b. V_{BMP} = *(10)* / 12 [ft- acres]	V_{BMP} = 0.018 ft-acre	*(11)*
c. V_{BMP} = *(11)* x 43560 [ft^3]	V_{BMP} = 769.56 ft^3	*(12)*

Notes:

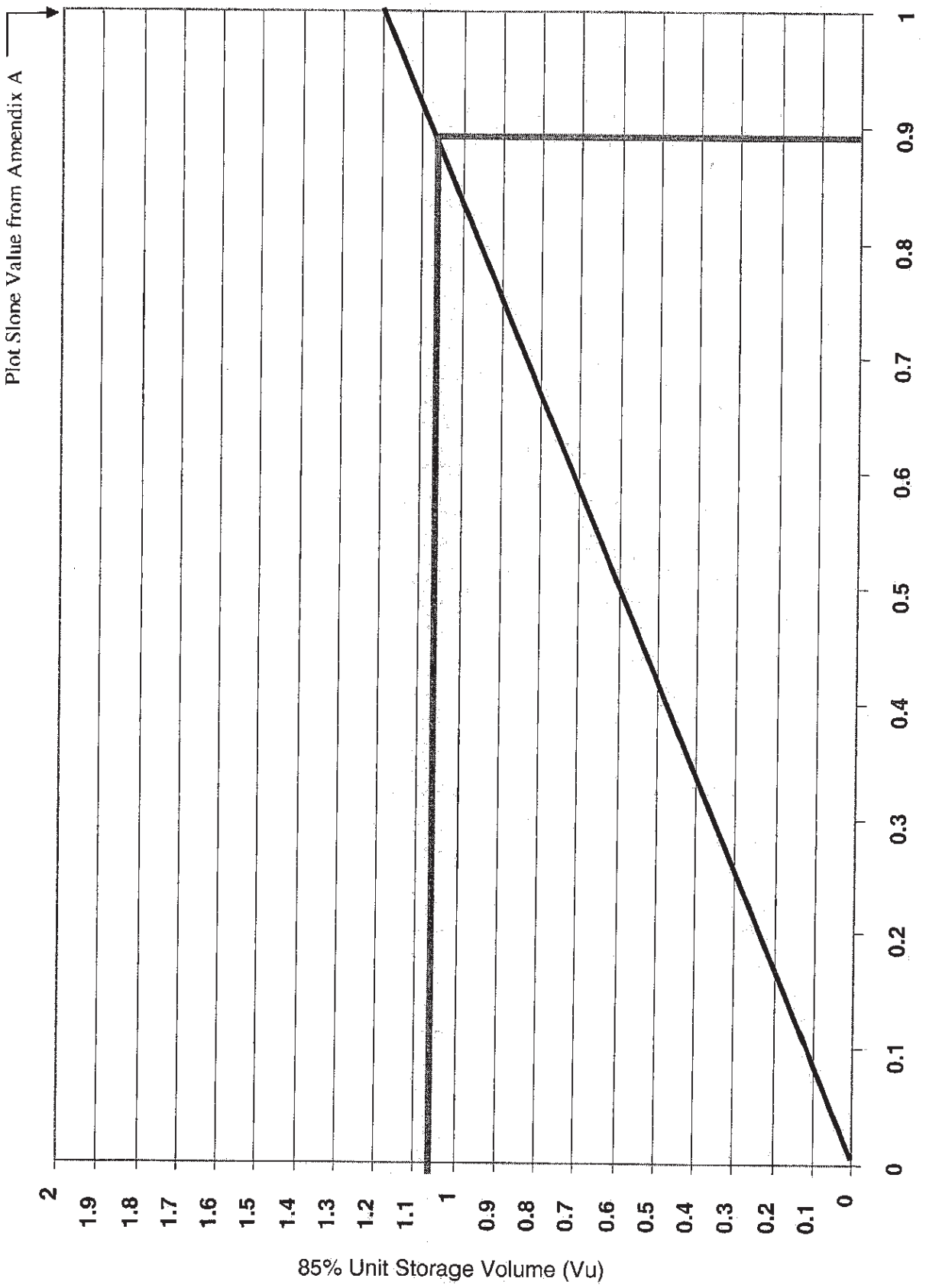


Figure 2 Unit Storage Volume Graph

PROPOSED E-18

EXISTING RAIN GARDEN C (TO REMAIN)

RAIN GARDENS:

Rain Garden Calculation – Phase 1 and Ultimate Buildout

Design Calculations:

$A_f = (WQ_V)\ (d_f) / [\ (k)\ (h_f + d_f)\ (t_f)]$

A_f = Surface area of filter bed (ft^2)	See Below	
d_f = filter bed depth (ft) =	4	
k = coefficient of permeability of filter media (ft/day)	30	(typical for fine to medium sand)
h_f = average height of water above filter bed (ft)	0	
t_f = design filter bed drain time (days)	1.67	

(1.67 days or 40 hours is recommended maximum for sand filters, 48 hours for bioretention)

Area	Acre	WQV (ft^3)	A_f (ft^2)	Rain Garden
E-6	0.20	770	16	**A**
E-7	0.16	610	12	**B**
E-9	0.53	2,047	42	**C**
E-10	0.57	2,193	44	**D**
E-11	0.43	1,654	33	**E**
E-15	0.54	2,078	42	**F**

E-9 BMP Area

Design Procedure for BMP Design Volume

RAINGARDEN "C"

85th percentile runoff event

Designer: Cynthia Gabaldon
Company: URS Corporation
Date: 11/02/2010
Project: UHS Temecula Hospital
Location: City of Temecula

1. Create Unit Storage Volume Graph a. Site location (Township, Range, and Section). b. Slope value from the Design Volume Curve in **Appendix A.** c. Plot this value on the Unit Storage Volume Graph shown on **Figure 2.** d. Draw a straight line form this point to the origin, to create the graph	T &R Section	*(1)*
	Slope = 1.2	*(2)*
	Is this graph attached? Yes ☐ No ☐	
2. Determine Runoff Coefficient a. Determine total impervious area	$A_{impervious}$ = 0.53 acres	*(5)*
b. Determine total tributary area	A_{total} = 0.53 acres	*(6)*
c. Determine Impervious fraction i = ***(5)*** / ***(6)***	i = 1.0	*(7)*
d. Use ***(7)*** in **Figure 1** to find Runoff OR $C = .858i^3 - .78i^2 + .774i + .04$	C = 0.89	*(8)*
3. Determine 85% Unit Storage Volume a. Use ***(8)*** in **Figure 2** Draw a Vertical line from ***(8)*** to the graph, then a Horizontal line to the desired V_u value.	V_u = 1.06 in-acre / acre	*(9)*
4. Determine Design Storage Volume a. V_{BMP} = ***(9)*** x ***(6)*** [in- acres]	V_{BMP} = 0.562 in-acre	*(10)*
b. V_{BMP} = ***(10)*** / 12 [ft- acres]	V_{BMP} = 0.047 ft-acre	*(11)*
c. V_{BMP} = ***(11)*** x 43560 [ft^3]	V_{BMP} = 2047.32 ft^3	*(12)*

Notes:

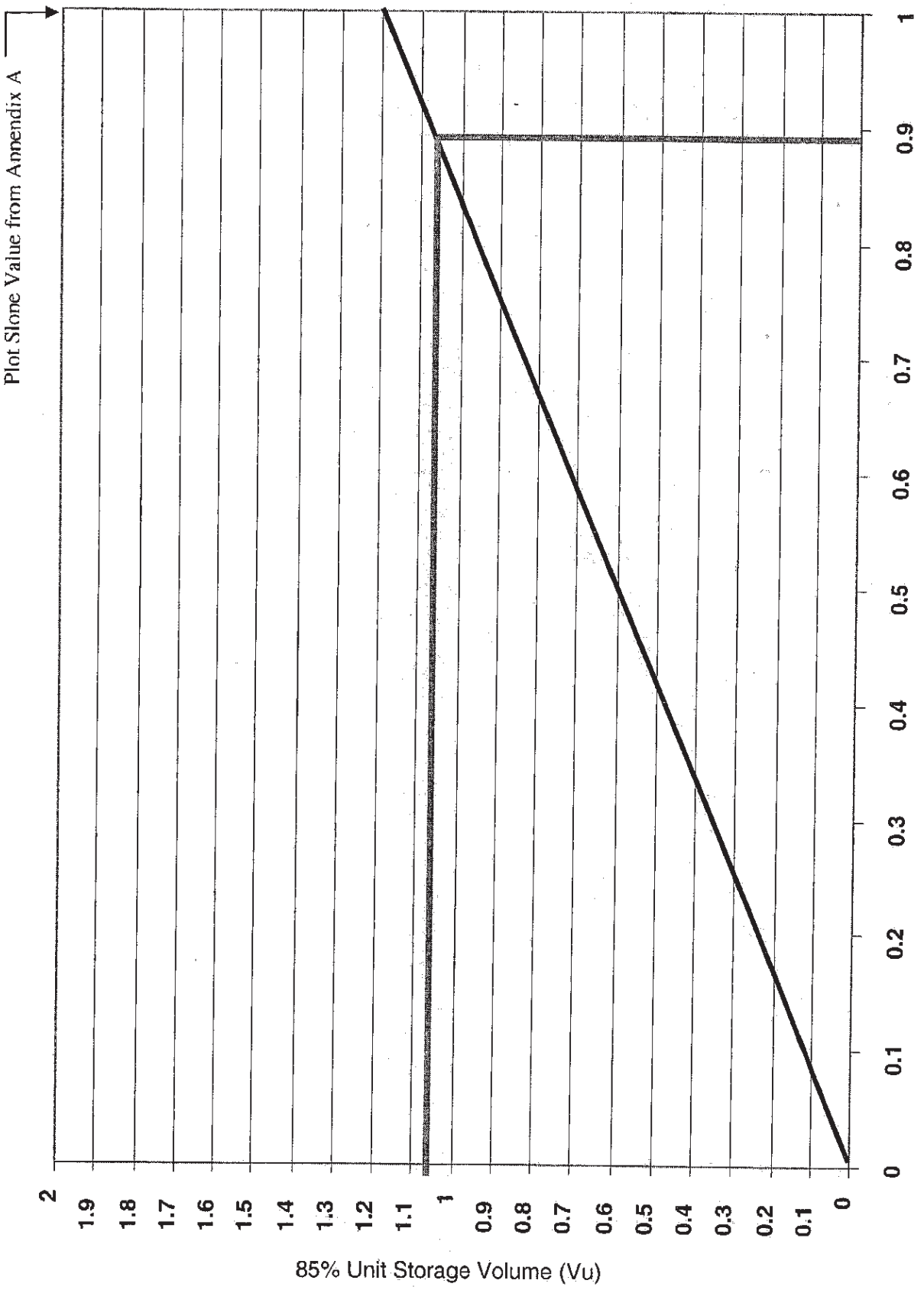


Figure 2 Unit Storage Volume Graph

PROPOSED E-19

PROPOSED RAIN GARDEN E1

PREVIOUSLY RAIN GARDEN E, MOVED IN ADDENDUM AND WILL BE MOVED AGAIN IN THIS ADDENDUM AS RAIN GARDEN E1 (CALCULATION THE SAME)

RAIN GARDENS:

Rain Garden Calculation – Phase 1 and Ultimate Buildout

Design Calculations:

$A_f = (WQ_V)\ (d_f) / [\ (k)\ (h_f + d_f)\ (t_f)]$

A_f = Surface area of filter bed (ft^2)	See Below	
d_f = filter bed depth (ft) =	4	
k = coefficient of permeability of filter media (ft/day)	30	(typical for fine to medium sand)
h_f = average height of water above filter bed (ft)	0	
t_f = design filter bed drain time (days)	1.67	

(1.67 days or 40 hours is recommended maximum for sand filters, 48 hours for bioretention)

Area	Acre	WQV (ft^3)	A_f (ft^2)	Rain Garden
E-6	0.20	770	16	**A**
E-7	0.16	610	12	**B**
E-9	0.53	2,047	42	**C**
E-10	0.57	2,193	44	**D**
E-11	0.43	1,654	33	**E**
E-15	0.54	2,078	42	**F**

E-11 BMP Area

Design Procedure for BMP Design Volume

RAIN GARDEN "E"

85th percentile runoff event

Designer: Cynthia Gabaldon
Company: URS Corporation
Date: 12/28/2010
Project: UHS Temecula Hospital
Location: City of Temecula

1. Create Unit Storage Volume Graph a. Site location (Township, Range, and Section). b. Slope value from the Design Volume Curve in **Appendix A**. c. Plot this value on the Unit Storage Volume Graph shown on **Figure 2.** d. Draw a straight line form this point to the origin, to create the graph	T &R Section	*(1)*
	Slope = 1.2	*(2)*
	Is this graph attached? Yes ☐ No ☐	
2. Determine Runoff Coefficient a. Determine total impervious area	$A_{impervious}$ = 0.43 acres	*(5)*
b. Determine total tributary area	A_{total} = 0.43 acres	*(6)*
c. Determine Impervious fraction i = *(5)* / *(6)*	i = 1.0	*(7)*
d. Use *(7)* in **Figure 1** to find Runoff OR $C = .858i^3 - .78i^2 + .774i + .04$	C = 0.89	*(8)*
3. Determine 85% Unit Storage Volume a. Use *(8)* in **Figure 2** Draw a Vertical line from *(8)* to the graph, then a Horizontal line to the desired V_u value.	V_u = 1.06 in-acre / acre	*(9)*
4. Determine Design Storage Volume a. V_{BMP} = *(9)* x *(6)* [in- acres]	V_{BMP} = 0.45 in-acre	*(10)*
b. V_{BMP} = *(10)* / 12 [ft- acres]	V_{BMP} = 0.038 ft-acre	*(11)*
c. V_{BMP} = *(11)* x 43560 [ft^3]	V_{BMP} = 1654.55 ft^3	*(12)*

Notes:

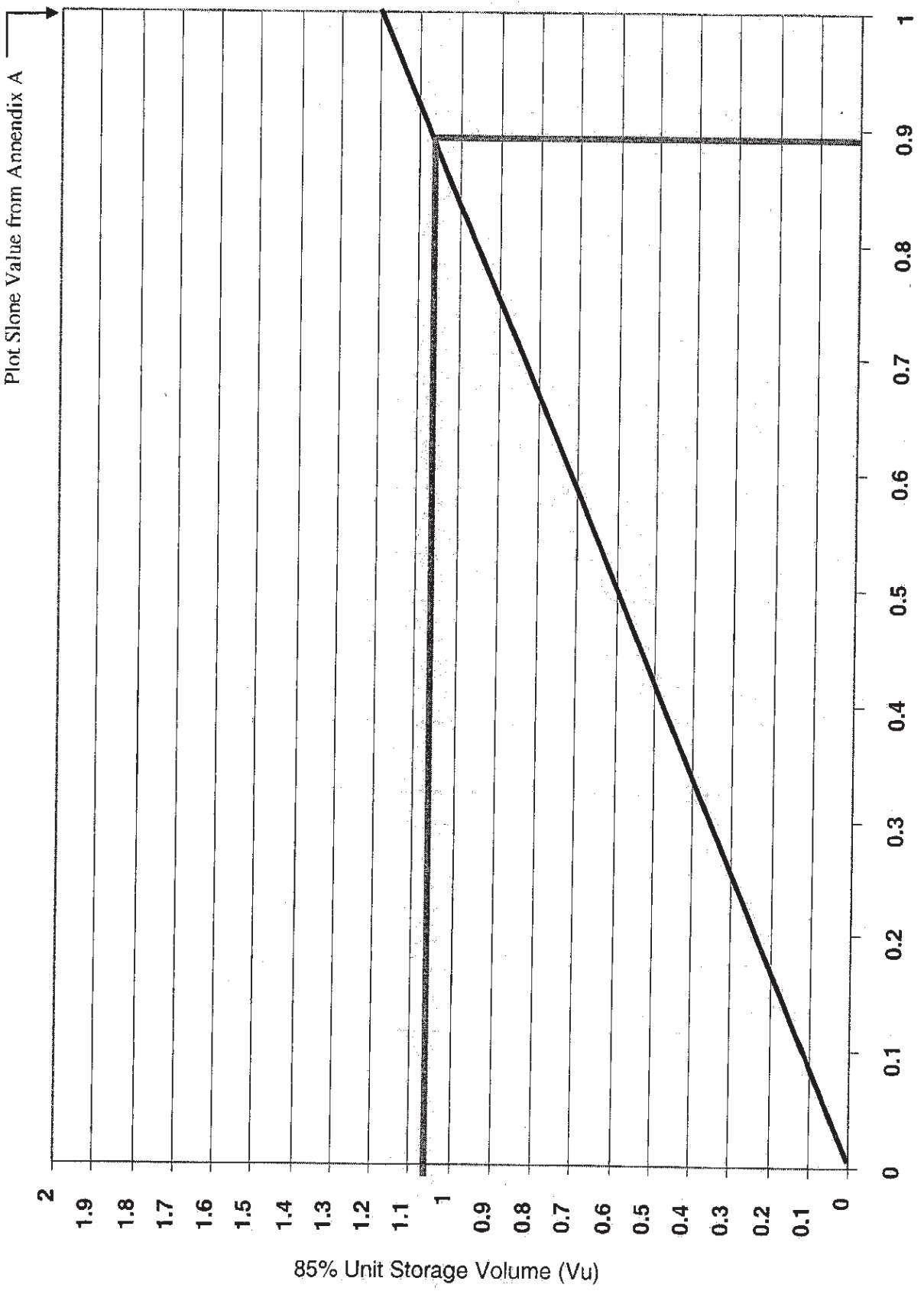


Figure 2 Unit Storage Volume Graph

PROPOSED E-20

PROPOSED RAIN GARDEN D1

(REPLACES RAIN GARDEN D) CALCULATION THE SAME JUST BASIN MOVED DUE TO NEW IMPERVIOUS AREA COVERING EXISTING RAIN GARDEN D

E-10 BMP Area

Design Procedure for BMP Design Volume

RAIN GARDEN "D"

85th percentile runoff event

Designer: Lisa Berman
Company: URS Corporation
Date: 11/02/2010
Project: UHS Temecula Hospital
Location: City of Temecula

1. Create Unit Storage Volume Graph		
a. Site location (Township, Range, and Section).	T &R Section	*(1)*
b. Slope value from the Design Volume Curve in **Appendix A.**	Slope = 1.2	*(2)*
c. Plot this value on the Unit Storage Volume Graph shown on **Figure 2.**		
d. Draw a straight line form this point to the origin, to create the graph	Is this graph attached? Yes ☐ No ☐	
2. Determine Runoff Coefficient		
a. Determine total impervious area	$A_{impervious}$ = 0.57 acres	*(5)*
b. Determine total tributary area	A_{total} = 0.57 acres	*(6)*
c. Determine Impervious fraction i = *(5)* / *(6)*	i = 1.0	*(7)*
d. Use *(7)* in **Figure 1** to find Runoff OR $C = .858i^3 - .78i^2 + .774i + .04$	C = 0.89	*(8)*
3. Determine 85% Unit Storage Volume		
a. Use *(8)* in **Figure 2** Draw a Vertical line from *(8)* to the graph, then a Horizontal line to the desired V_u value.	V_u = 1.06 in-acre / acre	*(9)*
4. Determine Design Storage Volume		
a. V_{BMP} = *(9)* x *(6)* [in- acres]	V_{BMP} = 0.60 in-acre	*(10)*
b. V_{BMP} = *(10)* / 12 [ft- acres]	V_{BMP} = 0.050 ft-acre	*(11)*
c. V_{BMP} = *(11)* x 43560 [ft^3]	V_{BMP} = 2193.24 ft^3	*(12)*

Notes:

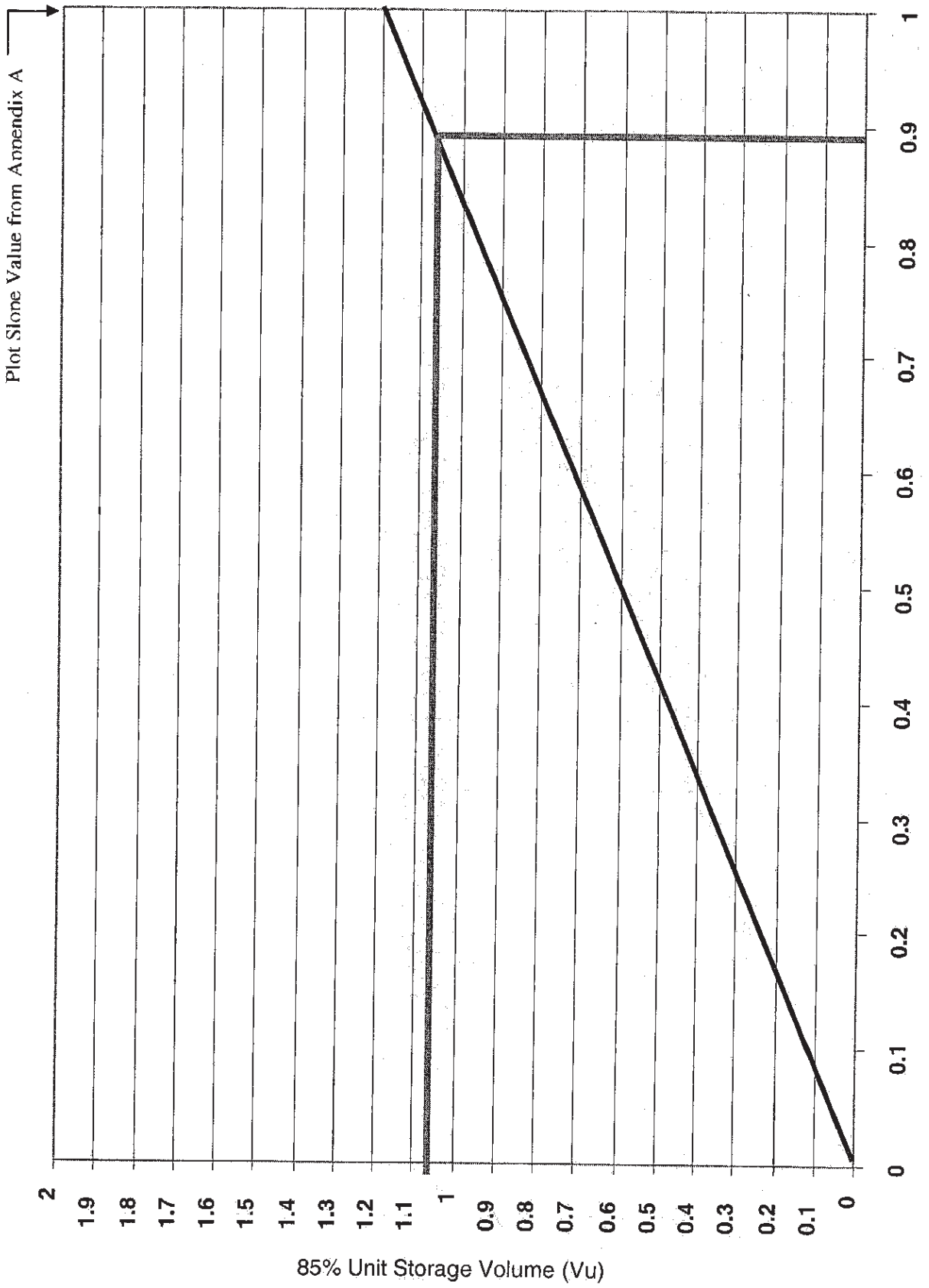


Figure 2 Unit Storage Volume Graph

PROPOSED E-21

PROPOSED RAIN GARDEN F1

PREVIOUSLY RAIN GARDEN F, MOVED IN ADDENDUM AND WILL BE MOVED AGAIN IN THIS AS RAIN GARDEN F1 (CALCULATION THE SAME)

RAIN GARDENS:

Rain Garden Calculation – Phase 1 and Ultimate Buildout

Design Calculations:

$A_f = (WQ_V)\ (d_f) / [\ (k)\ (h_f + d_f)\ (t_f)]$

A_f = Surface area of filter bed (ft^2)	See Below	
d_f = filter bed depth (ft) =	4	
k = coefficient of permeability of filter media (ft/day)	30	(typical for fine to medium sand)
h_f = average height of water above filter bed (ft)	0	
t_f = design filter bed drain time (days)	1.67	

(1.67 days or 40 hours is recommended maximum for sand filters, 48 hours for bioretention)

Area	Acre	WQV (ft^3)	A_f (ft^2)	Rain Garden
E-6	0.20	770	16	**A**
E-7	0.16	610	12	**B**
E-9	0.53	2,047	42	**C**
E-10	0.57	2,193	44	**D**
E-11	0.43	1,654	33	**E**
E-15	0.54	2,078	42	**F**

E-15 BMP Area

Design Procedure for BMP Design Volume

RAIN GARDEN "F"

85th percentile runoff event

Designer: Cynthia Gabaldon
Company: URS Corporation
Date: 12/28/2010
Project: UHS Temecula Hospital
Location: City of Temecula

1. Create Unit Storage Volume Graph		
a. Site location (Township, Range, and Section).	T &R Section	*(1)*
b. Slope value from the Design Volume Curve in **Appendix A**.	Slope = 1.2	*(2)*
c. Plot this value on the Unit Storage Volume Graph shown on **Figure 2.**		
d. Draw a straight line form this point to the origin, to create the graph	Is this graph attached? Yes ☐ No ☐	
2. Determine Runoff Coefficient		
a. Determine total impervious area	$A_{impervious}$ = 0.54 acres	*(5)*
b. Determine total tributary area	A_{total} = 0.54 acres	*(6)*
c. Determine Impervious fraction i = *(5)* / *(6)*	i = 1.0	*(7)*
d. Use *(7)* in **Figure 1** to find Runoff OR C = $.858i^3 - .78i^2 + .774i + .04$	C = 0.89	*(8)*
3. Determine 85% Unit Storage Volume		
a. Use *(8)* in **Figure 2** Draw a Vertical line from *(8)* to the graph, then a Horizontal line to the desired V_u value.	V_u = 1.06 in-acre/acre	*(9)*
4. Determine Design Storage Volume		
a. V_{BMP} = *(9)* x *(6)* [in- acres]	V_{BMP} = 0.57 in-acre	*(10)*
b. V_{BMP} = *(10)* / 12 [ft- acres]	V_{BMP} = 0.047 ft-acre	*(11)*
c. V_{BMP} = *(11)* x 43560 [ft^3]	V_{BMP} = 2077.8 ft^3	*(12)*

Notes:

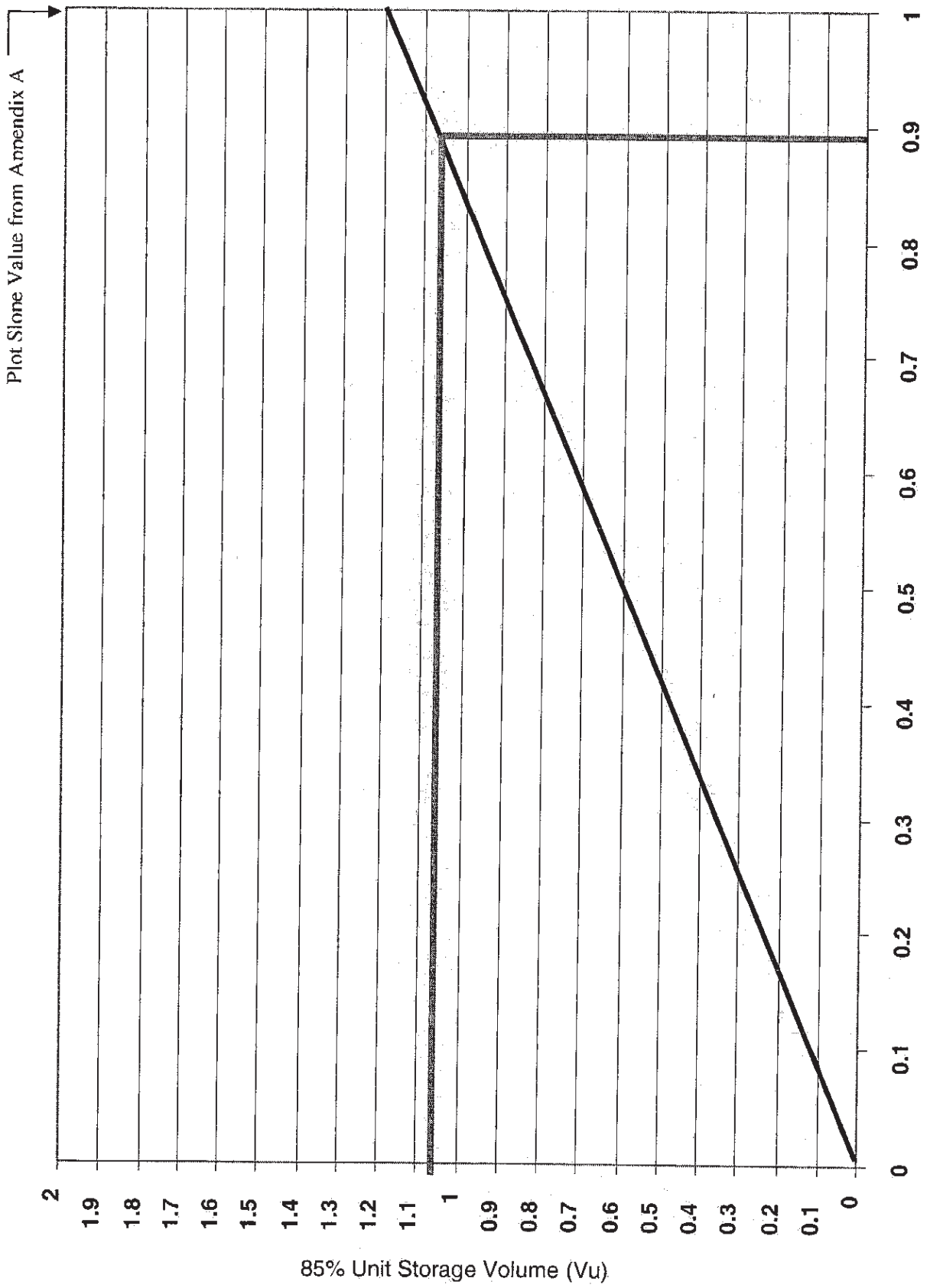


Figure 2 Unit Storage Volume Graph

PROPOSED E-22

SEE STORM DRAIN CALCULATIONS

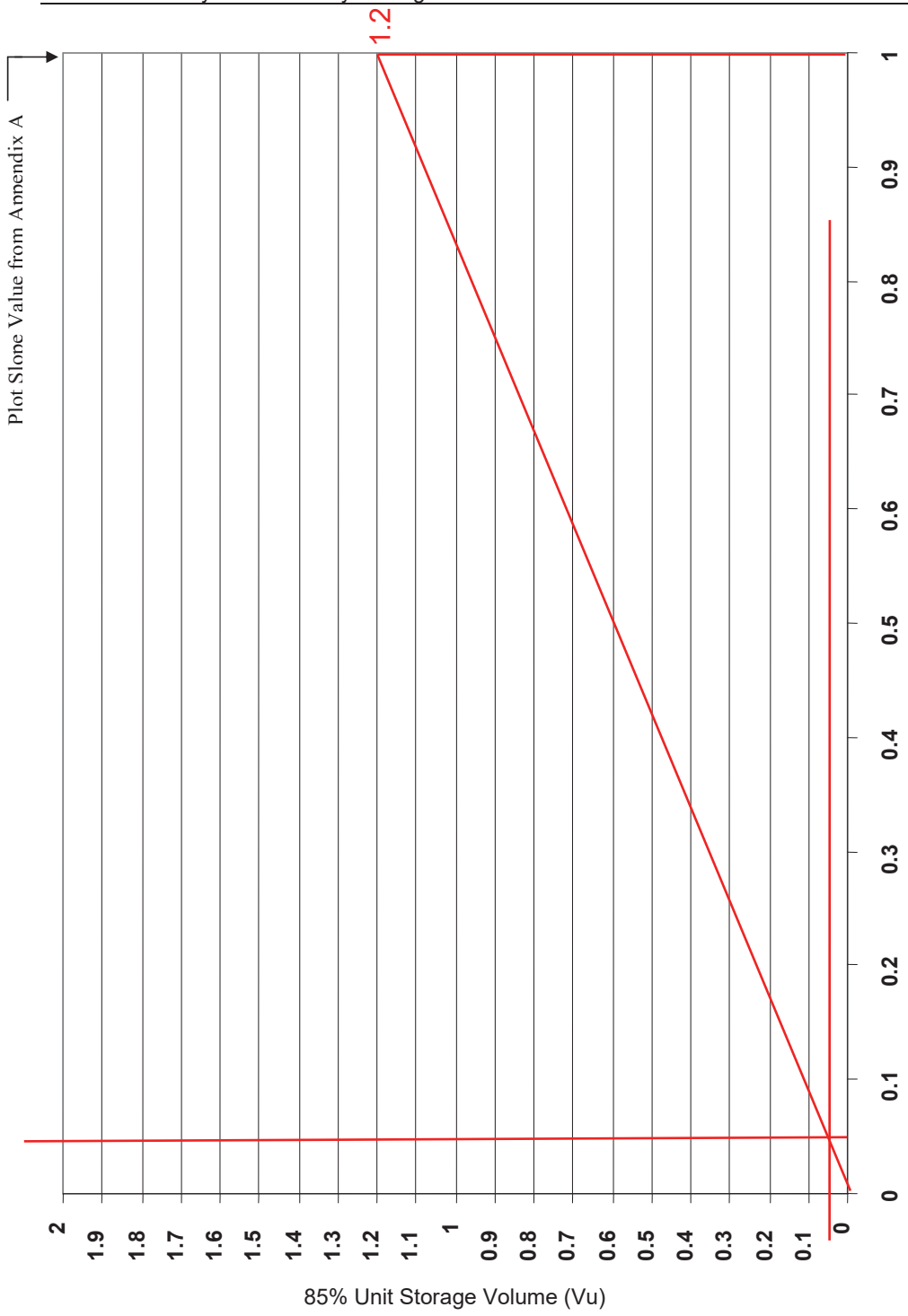


Figure 2 Unit Storage Volume Graph

PROPOSED E-23

SEE EXCEL SHEET CALCULATIONS

PROPOSED
RAIN GARDEN
H

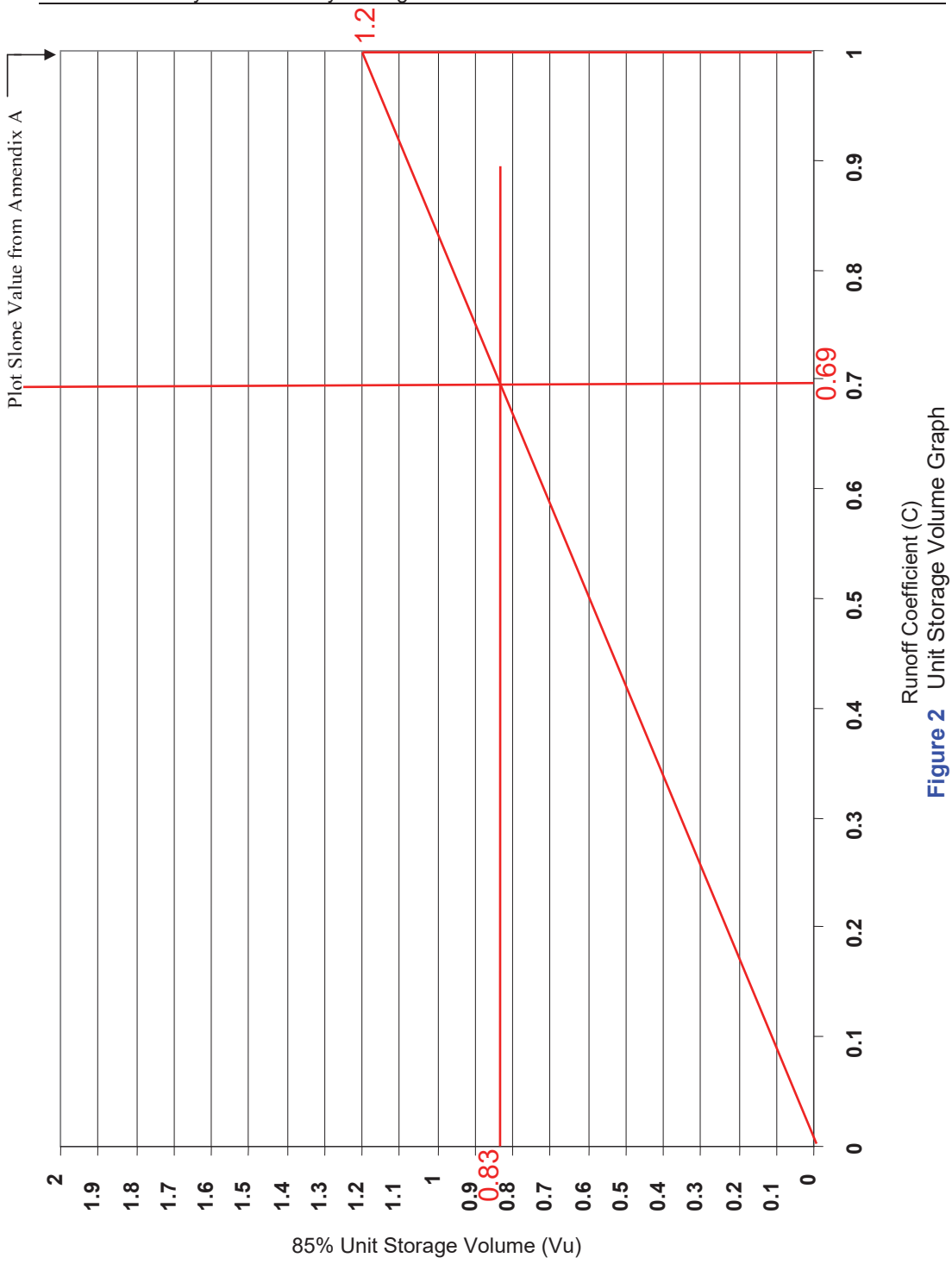


Figure 2 Unit Storage Volume Graph

PROPOSED E-24

SEE STORM CHAMBER CALCULATION

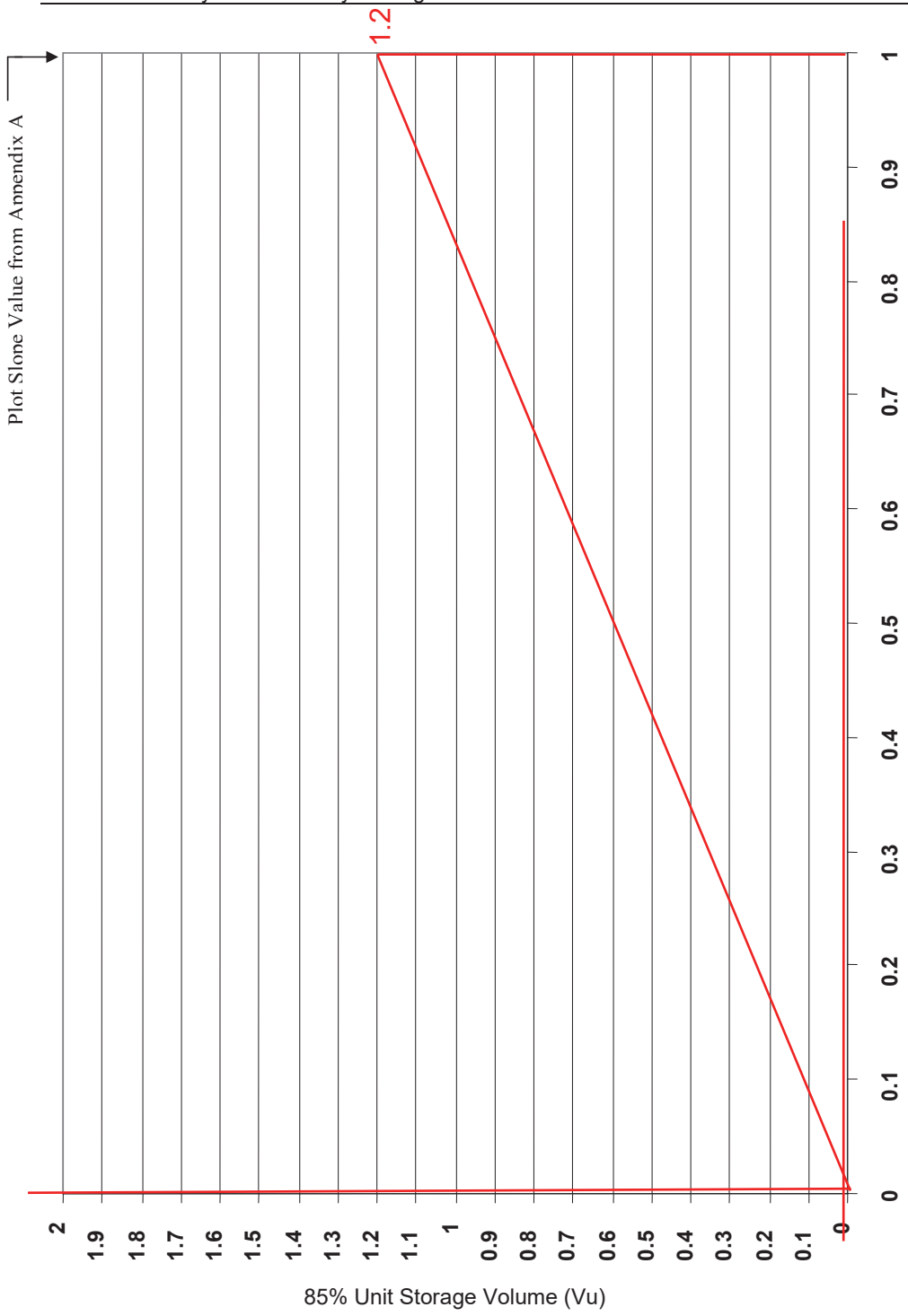


Figure 2 Unit Storage Volume Graph

PROPOSED W-16

PROPOSED DETENTION BASIN E & SAND FILTER E

SEE EXCEL SHEET CALCULATIONS

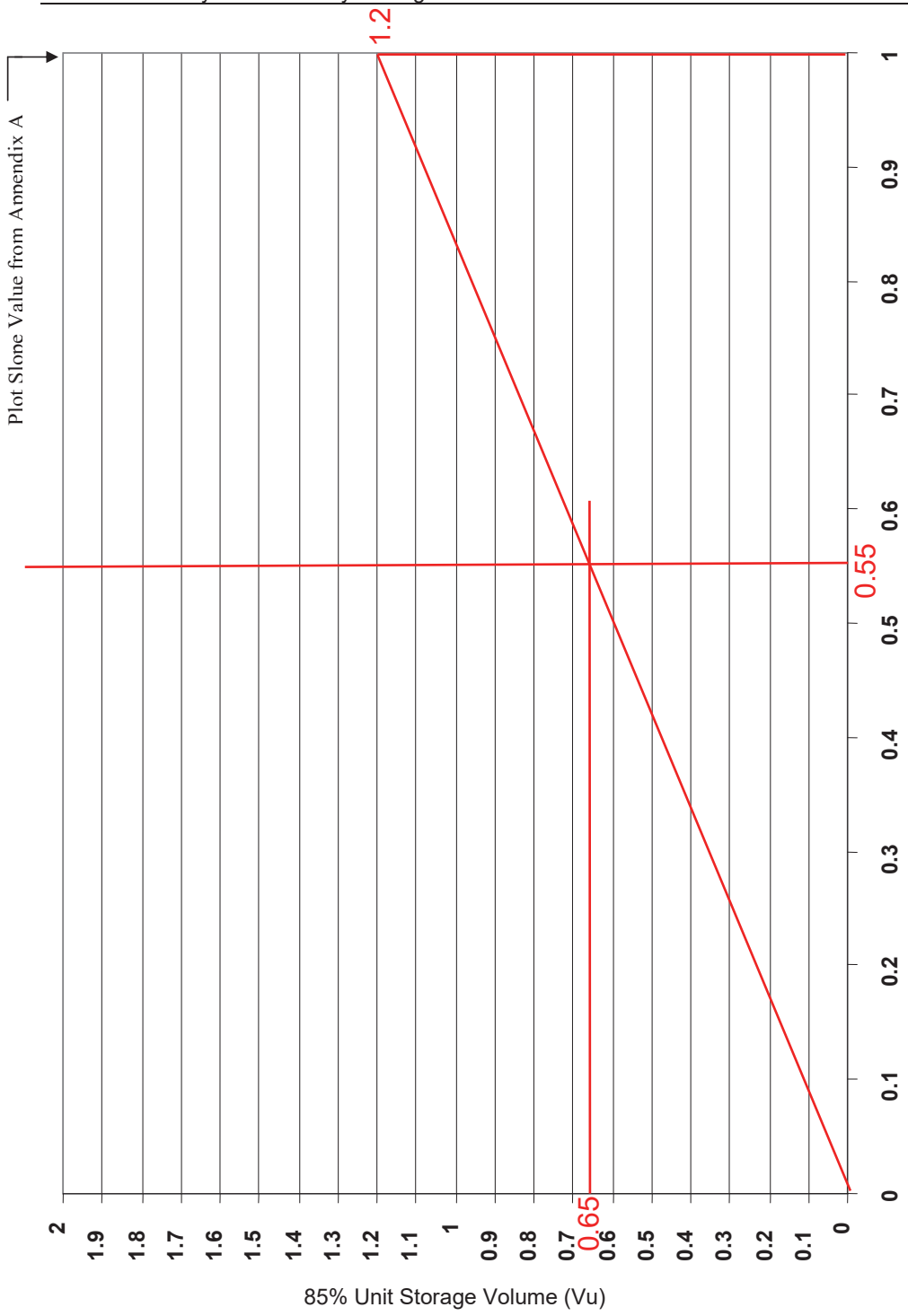


Figure 2 Unit Storage Volume Graph

PROPOSED W-17 +W-18

PROPOSED DETENTION BASIN A2 & SAND FILTER A2

SEE EXCEL SHEET CALCULATIONS

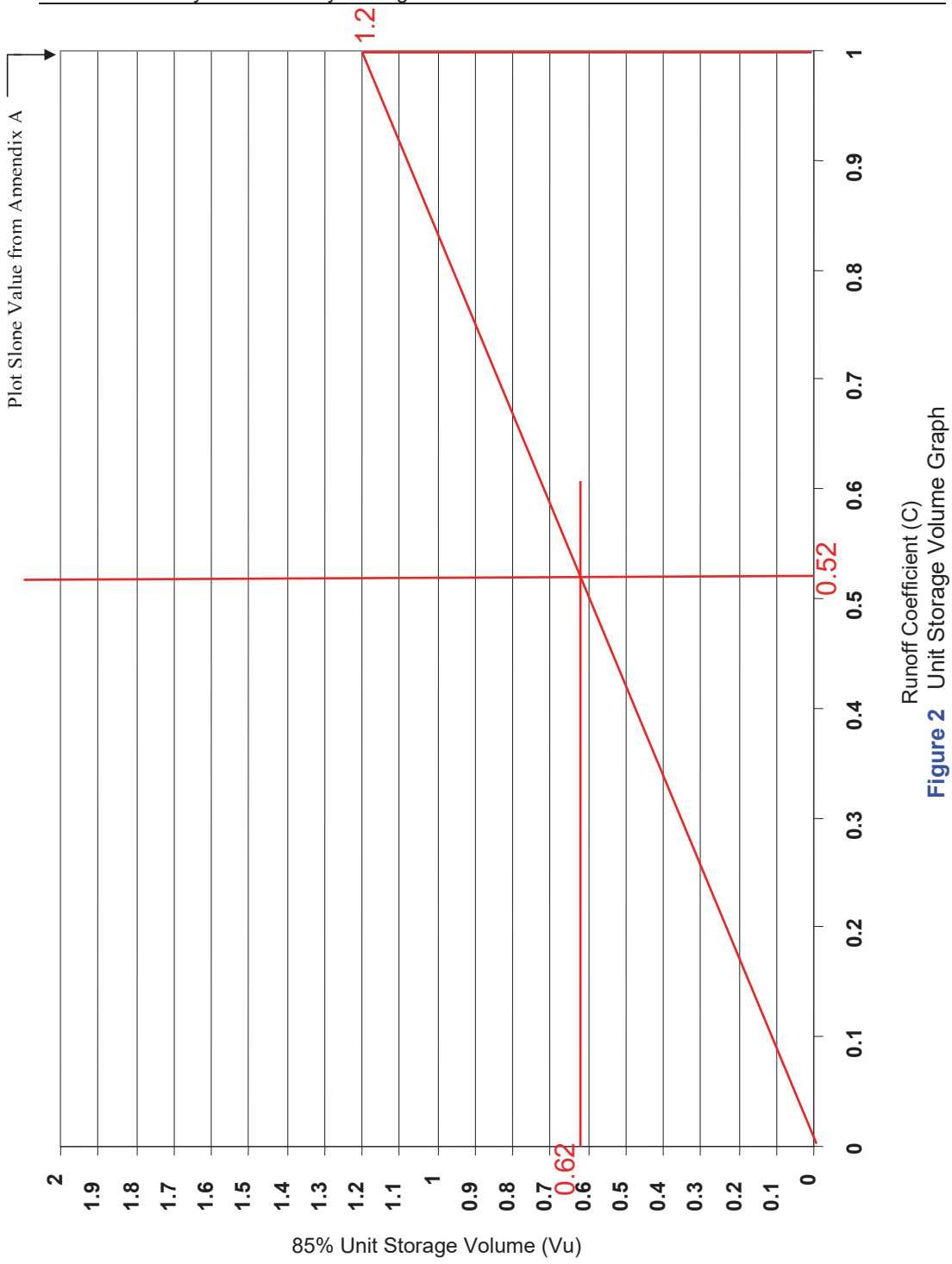


Figure 2 Unit Storage Volume Graph

PROPOSED W-19

PROPOSED DETENTION BASIN A1 & EXISTING SAND FILTER B (TO REMAIN)

SEE EXCEL SHEET CALCULATIONS



Figure 2 Unit Storage Volume Graph

Sand Filters :

Sand Filter Strip Calculation -
Ultimate
Given:

Trench Width =	1.5	ft

Sand Filter Design

$A_f = (WQ_V)\ (d_f) / [\ (k)\ (h_f + d_f)\ (t_f)]$

A_f = Surface area of filter bed (ft^2)

d_f = filter bed depth (ft)	4	
k = coefficient of permeability of filter media (ft/day)	30	(typical for fine to medium sand)
h_f = average height of water above filter bed (ft)	0	
t_f = design filter bed drain time (days)	1.67	

(1.67 days or 40 hours is recommended maximum for sand filters, 48 hours for bioretention)

Area	Acre	Unit Storage Volume	WQV (ft^3)	A_f (ft^2)	Requird Length (ft)	Design Length (ft)	Length Check	Underdrain Pipe Size (in)
W-2	1.88	1.060	7234	144	**96.26**	150	OK	**4**
W-11	0.25	1.060	962	19	**12.80**	77	OK	**4**

Pipe sizing:
Material = PVC
Slope = 0.50%

Pipe Size (in)	Full Flow Capacity (cfs)	Use 50% Flow Capacity (cfs)
4	0.17	**0.085**

Sand Filter IDs:
W-2 = Sand Filter A
W-11 = Sand Filter B

PROPOSED
W-20+W-25

EXISTING SAND FILTER A (TO REMAIN)

SEE EXCEL SHEET CALCULATIONS

Sand Filters :

Sand Filter Strip Calculation -
Ultimate
Given:

Trench Width =	1.5	ft

Sand Filter Design

$A_f = (WQ_V)\ (d_f) / [\ (k)\ (h_f + d_f)\ (t_f)]$

A_f = Surface area of filter bed (ft^2)

d_f = filter bed depth (ft)	4	
k = coefficient of permeability of filter media (ft/day)	30	(typical for fine to medium sand)
h_f = average height of water above filter bed (ft)	0	
t_f = design filter bed drain time (days)	1.67	

(1.67 days or 40 hours is recommended maximum for sand filters, 48 hours for bioretention)

Area	Acre	Unit Storage Volume	WQV (ft^3)	A_f (ft^2)	Requird Length (ft)	Design Length (ft)	Length Check	Underdrain Pipe Size (in)
W-2	1.88	1.060	7234	144	**96.26**	150	OK	**4**
W-11	0.25	1.060	962	19	**12.80**	77	OK	**4**

Pipe sizing:
Material = PVC
Slope = 0.50%

Pipe Size (in)	Full Flow Capacity (cfs)	Use 50% Flow Capacity (cfs)
4	0.17	**0.085**

Sand Filter IDs:
W-2 = Sand Filter A
W-11 = Sand Filter B

7234 CF IS GREATER THAN V BMP REQUIRED FOR NEW AREA (W-20+W25)

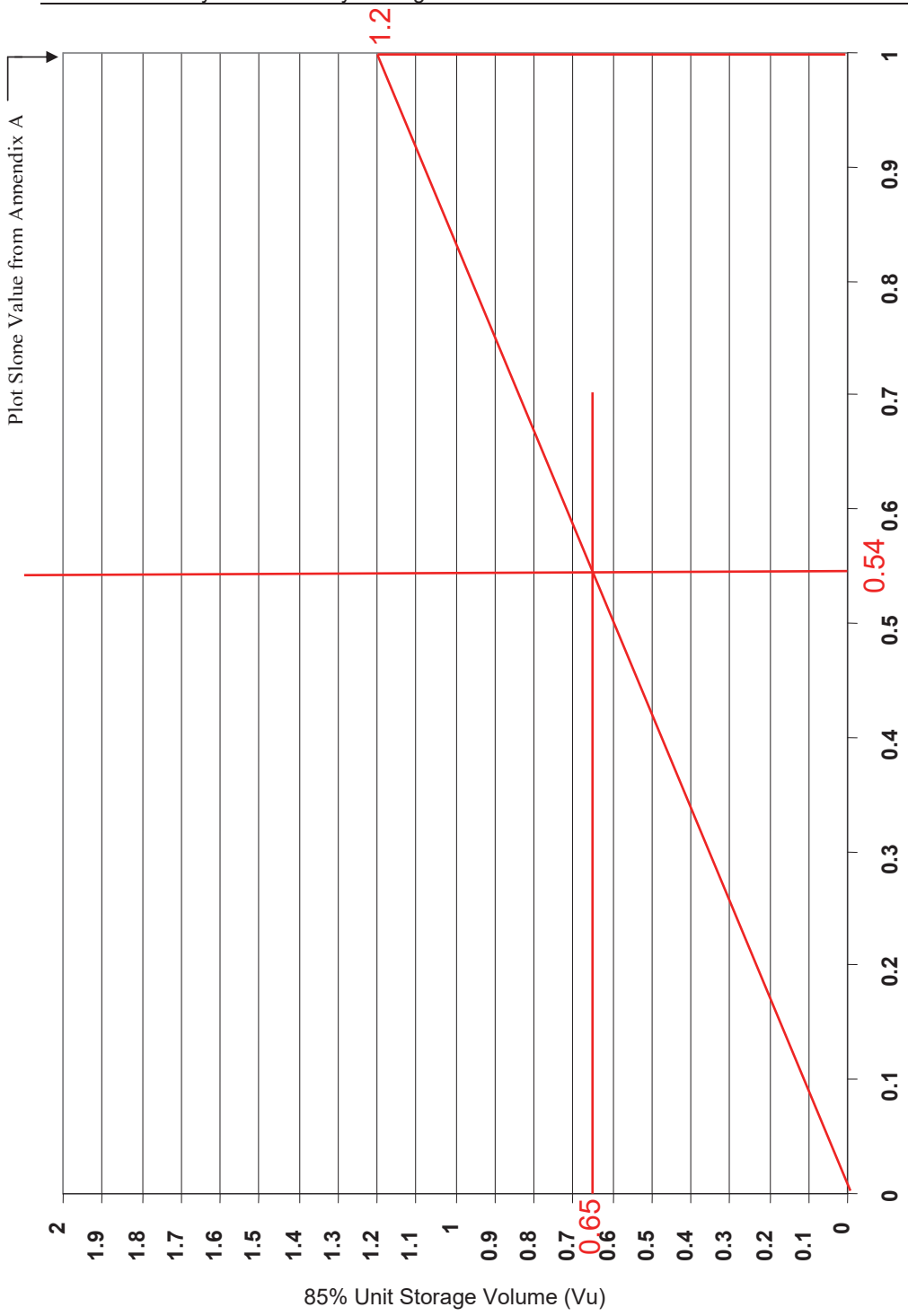


Figure 2 Unit Storage Volume Graph

PROPOSED W-21

EXISTING MWS B (TO REMAIN)

Worksheet 2

Design Procedure Form for Design Flow

Uniform Intensity Design Flow

Designer: CYNTHIA GABALDON
Company: URS CORP
Date: 6/3/11
Project: UHS TEMECULA
Location: TEMECULA, Ca W-1 MWSB

1. Determine Impervious Percentage		
a. Determine total tributary area	A_{total} = 1.68 acres	*(1)*
b. Determine Impervious %	i = 100 %	*(2)*
2. Determine Runoff Coefficient Values Use **Table 4** and impervious % found in step 1		
a. A Soil Runoff Coefficient	C_a =	*(3)*
b. B Soil Runoff Coefficient	C_b = .90	*(4)*
c. C Soil Runoff Coefficient	C_c =	*(5)*
d. D Soil Runoff Coefficient	C_d =	*(6)*
3. Determine the Area decimal fraction of each soil type in tributary area		
a. Area of A Soil / *(1)* =	A_a =	*(7)*
b. Area of B Soil / *(1)* =	A_b = 1.0	*(8)*
c. Area of C Soil / *(1)* =	A_c =	*(9)*
d. Area of D Soil / *(1)* =	A_d =	*(10)*
4. Determine Runoff Coefficient		
a. C = *(3)*x*(7)* + *(4)*x*(8)* + *(5)*x*(9)* + *(6)*x*(10)* =	C = .90	*(11)*
5. Determine BMP Design flow		
a. Q_{BMP} = C x I x A = *(11)* x 0.2 x *(1)*	Q_{BMP} = .122 $\frac{ft^3}{s}$	*(12)*

Worksheet 11

Design Procedure Form for Water Quality Inlets

Designer: CYNTHIA GABALDON
Company: URS CORP
Date: 6/3/11
Project: UHS Temecula
Location: Temecula, Ca W-1

1. Determine Design Flow Rate (Use Worksheet 2)	Q_{BMP} = .122 cfs Q_{100} = 2.4 cfs
2. Water Quality Inlet Manufacturer Name Model Flow Capacity of Model Please include a technical sheet from the manufacturer with information on this model.	Make MWS Model Linear curb type(L) 14' Capacity .15 cfs ~~treatment~~ Bypass = 2.9 cfs

Notes:
.68 acres
MWS "B"

PROPOSED W-22

EXISTING BASIN A AND MWS A (TO REMAIN)

Worksheet 2

Design Procedure Form for Design Flow

Uniform Intensity Design Flow

Designer: CYNTHIA GABALDON
Company: URS CORP
Date: 6/3/11
Project: UHS TEMECULA
Location: TEMECULA, CA W-9 MWS-A

1. Determine Impervious Percentage		
a. Determine total tributary area	A_{total} = .34 acres	*(1)*
b. Determine Impervious %	i = 100 %	*(2)*
2. Determine Runoff Coefficient Values Use Table 4 and impervious % found in step 1		
a. A Soil Runoff Coefficient	C_a =	*(3)*
b. B Soil Runoff Coefficient	C_b = .90	*(4)*
c. C Soil Runoff Coefficient	C_c =	*(5)*
d. D Soil Runoff Coefficient	C_d =	*(6)*
3. Determine the Area decimal fraction of each soil type in tributary area		
a. Area of A Soil / *(1)* =	A_a =	*(7)*
b. Area of B Soil / *(1)* =	A_b = 1.0	*(8)*
c. Area of C Soil / *(1)* =	A_c =	*(9)*
d. Area of D Soil / *(1)* =	A_d =	*(10)*
4. Determine Runoff Coefficient		
a. C = *(3)*x*(7)* + *(4)*x*(8)* + *(5)*x*(9)* + *(6)*x*(10)* =	C = .90	*(11)*
5. Determine BMP Design flow		
a. Q_{BMP} = C x I x A = *(11)* x 0.2 x *(1)*	Q_{BMP} = .061 $\frac{ft^3}{s}$	*(12)*

Worksheet 11

Design Procedure Form for Water Quality Inlets

Designer: CYNTHIA GABALDON
Company: URS CORP
Date: 6/3/11
Project: UHS TEMECULA
Location: TEMECULA, CA W-9 MWS A

1. Determine Design Flow Rate (Use Worksheet 2)	Q_{BMP} = .061 cfs Q_{100} = 1.1
2. Water Quality Inlet Manufacturer Name Model Flow Capacity of Model Please include a technical sheet from the manufacturer with information on this model.	Make MWS Model Linear Curb - 14' Capacity 6.15 cfs Bypass 2.9 cfs

Notes: MWS "A"

Worksheet 1

Design Procedure for BMP Design Volume

85th percentile runoff event

Designer: CYNTHIA GABALDON
Company: URS CORP
Date: 12/28/10
Project: UHS Temecula
Location: INFILTRATION BASIN - SE CORNER. "BASIN A"

1. Create Unit Storage Volume Graph a. Site location (Township, Range, and Section). b. Slope value from the Design Volume Curve in **Appendix A**. c. Plot this value on the Unit Storage Volume Graph shown on **Figure 2.** d. Draw a straight line form this point to the origin, to create the graph	T 8S &R 2W Section 18	*(1)*
	Slope = 1.20	*(2)*
	Is this graph attached? Yes ☑ No ☐	
2. Determine Runoff Coefficient a. Determine total impervious area	$A_{impervious}$ = _____ acres	*(5)*
b. Determine total tributary area	A_{total} = 6.23 acres	*(6)*
c. Determine Impervious fraction i = *(5)* / *(6)*	i = _____	*(7)*
d. Use *(7)* in **Figure 1** to find Runoff OR $C = .858i^3 - .78i^2 + .774i + .04$	C = 0.89	*(8)*
3. Determine 85% Unit Storage Volume a. Use *(8)* in **Figure 2** Draw a Vertical line from *(8)* to the graph, then a Horizontal line to the desired V_u value.	V_u = 1.06 in-acre / acre	*(9)*
4. Determine Design Storage Volume a. V_{BMP} = *(9)* x *(6)* [in- acres]	V_{BMP} = 6.6 in-acre	*(10)*
b. V_{BMP} = *(10)* / 12 [ft- acres]	V_{BMP} = 0.55 ft-acre	*(11)*
c. V_{BMP} = *(11)* x 43560 [ft^3]	V_{BMP} = 23,958 ft^3	*(12)*

Notes: Subareas E-5, E-34, E-36, E-37, E-42

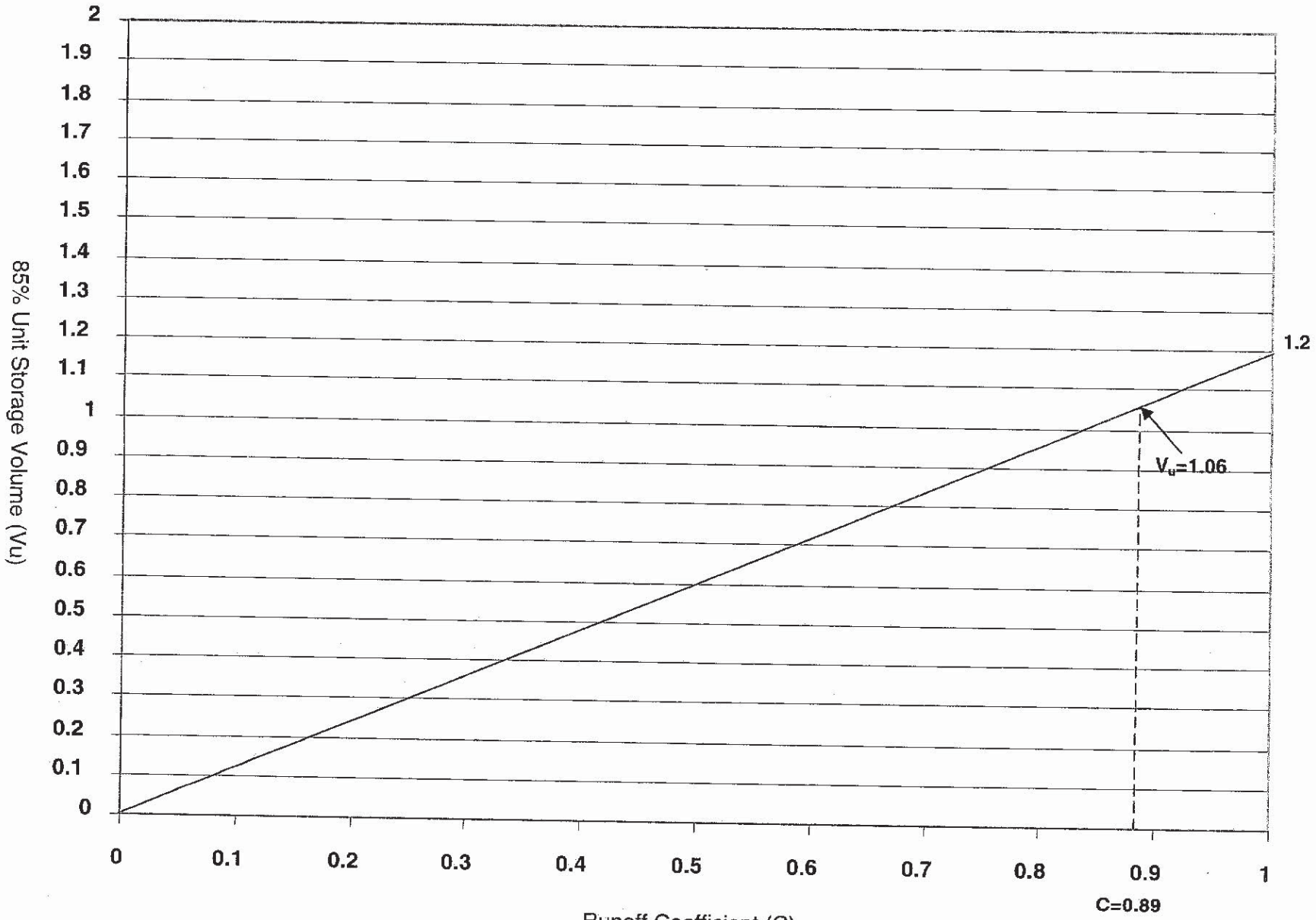


Figure 2 Unit Storage Volume Graph

Worksheet 4

Design Procedure Form for Infiltration Basin

Designer: Cynthia Gabaldon
Company: URS Corporation
Date: December 28, 2010
Project: UHS Temecula
Location: Southeast Corner of Site

1. Determine Design Storage Volume (Use Worksheet 1) a. Total Tributary Area (maximum 50) b. Design Storage Volume, V_{BMP}	A_{total} = 6.23 acres V_{BMP} = 23,958 ft^3
2. Maximum Allowable Depth (D_m) a. Site infiltration rate (I) b. Minimum drawdown time (48 hrs) c. Safety factor (s) d. D_m = [(t) x (I)]/[12s]	I = 30 in/hr t = 48 hrs s = 2 D_m = 0.4 ft
3. Basin Surface Area $A_m = V_{BMP} / D_m$	A_m = 62,393 ft^2
4. Vegetation (check type used or describe "other")	☑ Native Grasses ☐ Irrigated Turf Grass ☐ Other

Notes:

Worksheet 1

Design Procedure for BMP Design Volume

85th percentile runoff event

Designer: MARGIE DE LAURELL / CYNTHIA GARLOW
Company: URS CORP
Date: 12/28/10
Project: UHS TEMECULA
Location: DETENTION BASIN "A" (W-10)

1. Create Unit Storage Volume Graph a. Site location (Township, Range, and Section). b. Slope value from the Design Volume Curve in **Appendix A.** c. Plot this value on the Unit Storage Volume Graph shown on **Figure 2.** d. Draw a straight line form this point to the origin, to create the graph	T 8S &R 2W Section 18 *(1)* Slope = 1.2 *(2)* Is this graph attached? Yes ☑ No ☐
2. Determine Runoff Coefficient a. Determine total impervious area b. Determine total tributary area c. Determine Impervious fraction i = *(5)* / *(6)* d. Use *(7)* in **Figure 1** to find Runoff OR C = $.858i^3 - .78i^2 + .774i + .04$	$A_{impervious}$ = _____ acres *(5)* A_{total} = .28 acres *(6)* i = _____ *(7)* C = .89 *(8)*
3. Determine 85% Unit Storage Volume a. Use *(8)* in **Figure 2** Draw a Vertical line from *(8)* to the graph, then a Horizontal line to the desired V_u value.	V_u = 1.06 in-acre / acre *(9)*
4. Determine Design Storage Volume a. V_{BMP} = *(9)* x *(6)* [in- acres] b. V_{BMP} = *(10)* / 12 [ft- acres] c. V_{BMP} = *(11)* x 43560 [ft^3]	V_{BMP} = .2968 in-acre *(10)* V_{BMP} = .0247 ft-acre *(11)* V_{BMP} = 1077 ft^3 *(12)*

Notes: W-10

Worksheet 3

Design Procedure Form for Extended Detention Basin

Designer: MARGIE DE LAUREL/ CYNTHIA GABALDON
Company: URS CORP
Date: 12/28/10
Project: VHS TEMECULA
Location: DETENTION BASIN "A" (W-10)

1. Determine Design Volume (Use Worksheet 1) a. Total Tributary Area (minimum 5 ac.) b. Design Volume, V_{BMP}	A_{total} = .28 acres V_{BMP} = 1077 ft^3
2. Basin Length to Width Ratio (2:1 min.)	Ratio = _____ L:W
3. Two-Stage Design a. Overall Design 1) Depth (3.5' min.) 2) Width (30' min.) 3) Length (60' min.) 4) Volume (must be ≥ V_{BMP}) b. Upper Stage 1) Depth (2' min.) 2) Bottom Slope (2% to low flow channel recommended) c. Bottom Stage 1) Depth (1.5' to 3') 2) Length 3) Volume (10 to 25% of V_{BMP})	Depth = _____ ft Width = 30 ft Length = 25 ft Volume = 1875 ft^3 Depth = _____ ft Slope = _____ % Depth = _____ ft Length = _____ ft Volume = _____ ft^3
4. Forebay Design a. Forebay Volume (5 to 10% of V_{BMP}) b. Outlet pipe drainage time (≅ 45 min)	Volume = _____ ft^3 Drain time = _____ minutes
5. Low-flow Channel a. Depth (9" minimum) b. Flow Capacity (2 * Forebay Q_{OUT})	Depth = _____ ft $Q_{Low\ Flow}$ = _____ cfs
6. Trash Rack or Gravel Pack (check one)	Trash Rack _____ Gravel Pack ✓

BASIN "A" (W-10)

7. Basin Outlet a. Outlet type (check one) b. Orifice Area c. Orifice Type d. Maximum Depth of water above bottom orifice e. Length of time for 50% V_{BMP} drainage (24 hour minimum) f. Length of time for 100% V_{BMP} drainage (between 48 and 72 hours) g. Attached Documents (all required) 1) Stage vs. Discharge 2) Stage vs. Volume 3) Inflow Hydrograph 4) Basin Routing	Single orifice ✓ Multi-orifice plate ____ Perforated Pipe ____ Other ____ Area = ____ ft^2 Type ____ Depth = ____ ft Time 50% = 24 hrs Time 100% = 72 hrs OUTFALL = 14.4 cfs Attached Documents (check) 1) ____ 2) ____ 3) ____ 4) ____
8. Increased Runoff (optional) Is this basin also mitigating increased runoff? Attached Documents (all required) for 2, 5, & 10-year storms: 1) Stage vs. Discharge 2) Stage vs. Volume 3) Inflow Hydrograph 4) Basin Routing	Yes ✓ No ____ (if No, skip to #9) SEE HYDROLOGY REPORT Attached Documents (check) 1) ____ 2) ____ 3) ____ 4) ____
9. Vegetation (check type)	✓ Native Grasses ____ Irrigated Turf ____ Other ____
10. Embankment N/A a. Interior slope (4:1 max.) b. Exterior slope (3:1 max.)	Interior Slope = ____ % Exterior Slope = ____ %
11. Access N/A a. Slope (10% max.) b. Width (16 feet min.)	Slope = ____ % Width = ____ ft

PROPOSED W-24

TO OFFSITE

SEE WRITEUP ON OFFSITE WATER IN THE HYDROLOGY REPORT

PROPOSED W-26

PROPOSED BASIN B AND SAND FILTER B

SEE EXCEL SHEET CALCULATIONS

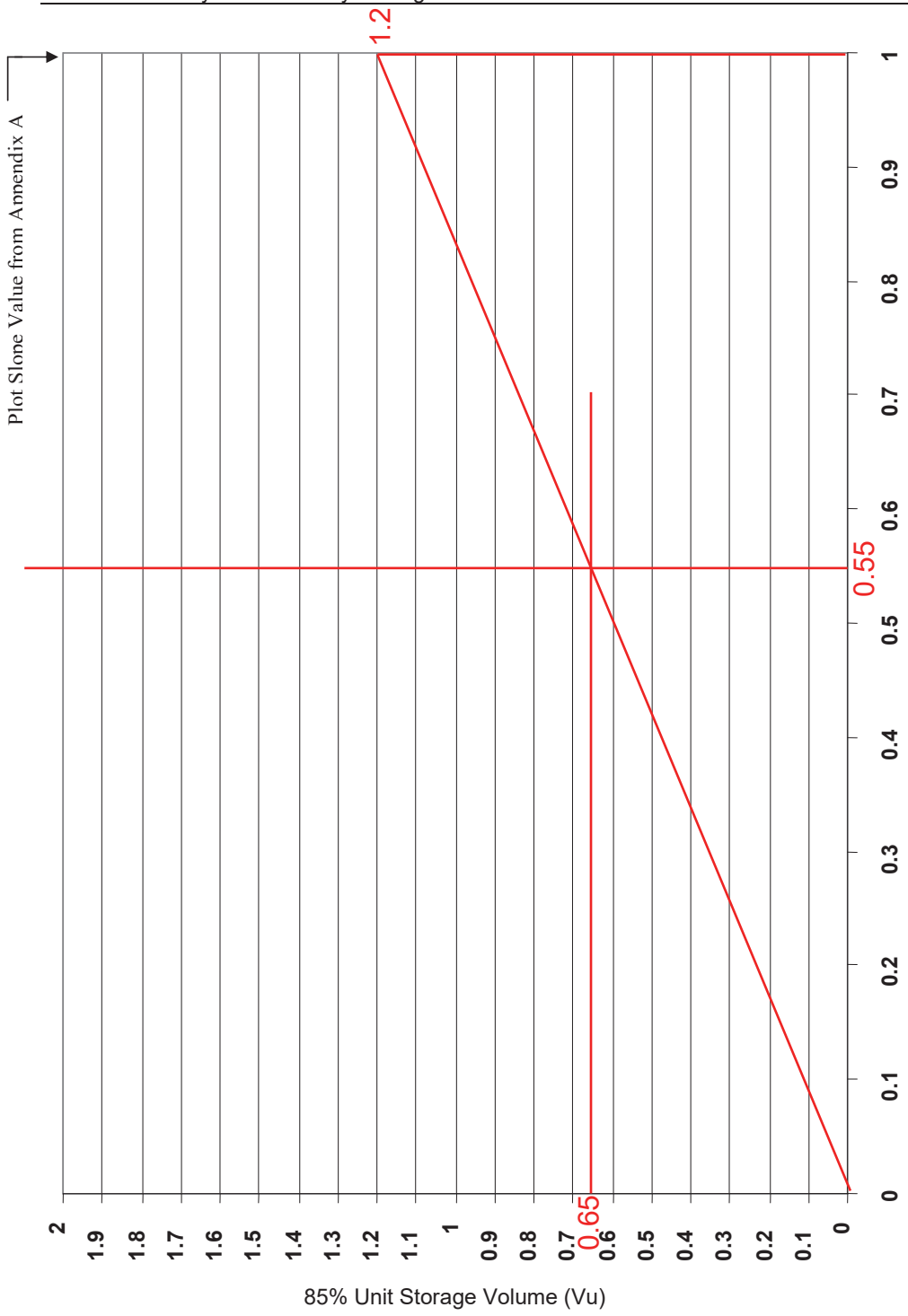


Figure 2 Unit Storage Volume Graph

STORM CHAMBER A CALCULATIONS

WATER QUALITY VOLUME

Storm Chambers A located on the east side of the site will be used for both water quality/treatment and Q100 hydrology. The water quality calculations will be for the remaining DMA's on-site that do not route directly to a treatment BMP. Those area will have a cumulative Vbmp that will be sized to a certain area.
The cumulative Vbmp of the remaining DMA's is 4567 cf.

The area required for this Vbmp volume is 3807 sf. The chambers are sized to have an area of 12,443 sf, therefore, the water quality requirements have been met.

The following Attachments provide:

Treatment Train Example Calculation with a reference to the infiltration trench Volume calculation.

Storm Chambers DMAs and the Cumulative Vbmp

The Storm Chamber Size Used

The Area Calculation for the Vbmp.

TREATMENT TRAIN EXAMPLE CALCULATION

EXAMPLE CALCULATION

PRETREATMENT W/ STORMTECH CHAMBER ✓

STORM TECH HAS A PRETREATMENT CHAMBERS INCLUDED



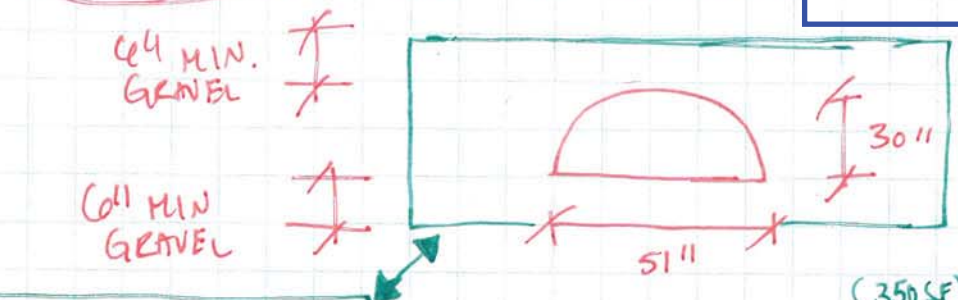
$$d = \frac{V_{BMP} \times 0.2 + RFV}{SA}$$

- d: TRENCH DEPTH
- V_{BMP}: 0.2V
- RFV: ROCK VOLUME
- SA: surface area trench bottom.

EQUATION FROM TC-10 INFILTRATION TRENCH (CASQA)

THESE ARE MINIMUM SIZES FOR SC-740 CHAMBER SEE FOLLOWING SHEET FOR MORE INFORMATION

EXAMPLE: ALL AT MINIMUM



DEPTH = 42"
TOTAL SYSTEM = 74.90 FT²
CUM MINIMUM AMOUNTS.

$$V_{STORM\ CHAMBER} = \left(\frac{74.90\ FT^2}{2}\right)(SA)\ (350\ SF)\ (MINIMUM.)$$

VOL. REMAINING = V_{BMP} − $V_{STORM\ CHAMBER}$

10011.54 SF − 26215 SF

VOL. REMAINING = 16203.46

VOLUME REMINING WILL BE FOR THE SAND FILTERS

FOR EXAMPLE CALCULATION

STORMTECH SC-740 CHAMBER

Designed to meet the most stringent industry performance standards for superior structural integrity while providing designers with a cost-effective method to save valuable land and protect water resources. The StormTech system is designed primarily to be used under parking lots, thus maximizing land usage for private (commercial) and public applications. StormTech chambers can also be used in conjunction with Green Infrastructure, thus enhancing the performance and extending the service life of these practices.



StormTech SC-740 Chamber (not to scale)

Nominal Chamber Specifications

Size (Lx W x H)	85.4" x 51.0" x 30.0" (2,170 x 1,295 x 762 mm)
Chamber Storage	45.9 ft³ (1.30 m³)
Min. Installed Storage*	74.9 ft³ (2.12 m³)
Weight	74.0 lbs (33.6 kg)

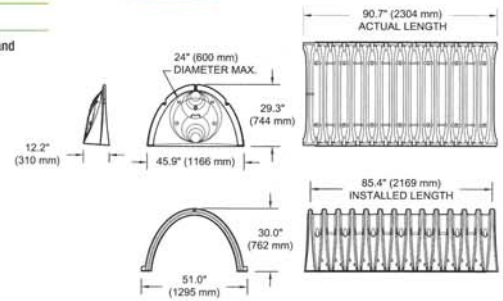
*Assumes 6" (150 mm) stone above, below and between chambers and 40% stone porosity.

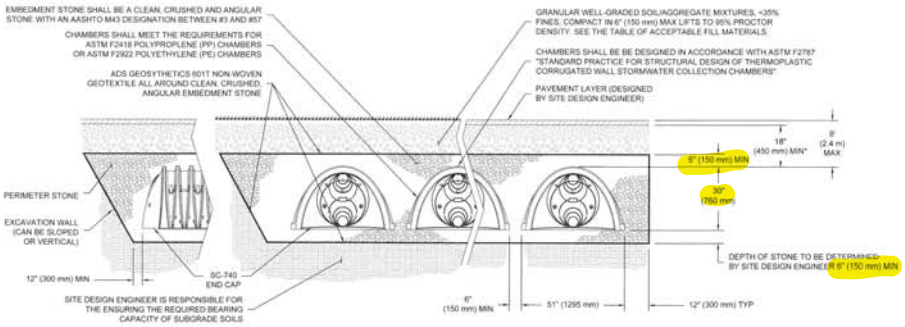
Shipping

30 chambers/pallet

60 end caps/pallet

12 pallets/truck





*MINIMUM COVER TO BOTTOM OF FLEXIBLE PAVEMENT. FOR UNPAVED INSTALLATIONS WHERE RUTTING FROM VEHICLES MAY OCCUR, INCREASE COVER TO 24" (600 mm).

THE INSTALLED CHAMBER SYSTEM SHALL PROVIDE THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS SECTION 12.12 FOR EARTH AND LIVE LOADS, WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.

SC-740 CUMLATIVE STORAGE VOLUMES PER CHAMBER

Assumes 40% Stone Porosity. Calculations are Based Upon a 6" (150 mm) Stone Base Under Chambers.

Depth of Water in System Inches (mm)		Cumulative Chamber Storage ft³ (m³)	Total System Cumulative Storage ft³ (m³)
42 (1067)		45.90 (1.300)	74.90 (2.121)
41 (1041)		45.90 (1.300)	73.77 (2.089)
40 (1016)	Stone	45.90 (1.300)	72.64 (2.057)
39 (991)	Cover	45.90 (1.300)	71.52 (2.025)
38 (965)		45.90 (1.300)	70.39 (1.993)
37 (940)		45.90 (1.300)	69.26 (1.961)
36 (914)		45.90 (1.300)	68.14 (1.929)
35 (889)		45.85 (1.298)	66.98 (1.897)
34 (864)		45.69 (1.294)	65.75 (1.862)
33 (838)		45.41 (1.286)	64.46 (1.825)
32 (813)		44.81 (1.269)	62.97 (1.783)
31 (787)		44.01 (1.246)	61.36 (1.737)
30 (762)		43.06 (1.219)	59.66 (1.689)
29 (737)		41.98 (1.189)	57.89 (1.639)
28 (711)		40.80 (1.155)	56.05 (1.587)
27 (686)		39.54 (1.120)	54.17 (1.534)
26 (660)		38.18 (1.081)	52.23 (1.479)
25 (635)		36.74 (1.040)	50.23 (1.422)
24 (610)		35.22 (0.977)	48.19 (1.365)
23 (584)		33.64 (0.953)	46.11 (1.306)
22 (559)		31.99 (0.906)	44.00 (1.246)
21 (533)		30.29 (0.858)	1.85 (1.185)
20 (508)		28.54 (0.808)	39.67 (1.123)
19 (483)		26.74 (0.757)	37.47 (1.061)
18 (457)		24.89 (0.705)	35.23 (0.997)
17 (432)		23.00 (0.651)	32.96 (0.939)
16 (406)		21.06 (0.596)	30.68 (0.869)
15 (381)		19.09 (0.541)	28.36 (0.803)
14 (356)		17.08 (0.484)	26.03 (0.737)
13 (330)		15.04 (0.426)	23.68 (0.670)
12 (305)		12.97 (0.367)	21.31 (0.608)
11 (279)		10.87 (0.309)	18.92 (0.535)
10 (254)		8.74 (0.247)	16.51 (0.468)
9 (229)		6.58 (0.186)	14.09 (0.399)
8 (203)		4.41 (0.125)	11.66 (0.330)
7 (178)		2.21 (0.063)	9.21 (0.264)
6 (152)		0 (0)	6.76 (0.191)
5 (127)		0 (0)	5.63 (0.160)
4 (102)	Stone	0 (0)	4.51 (0.128)
3 (76)	Foundation	0 (0)	3.38 (0.096)
2 (51)		0 (0)	2.25 (0.064)
1 (25)		0 (0)	1.13 (0.032)

Note: Add 1.13 ft³ (0.032 m³) of storage for each additional inch (25 mm) of stone foundation.

STORAGE VOLUME PER CHAMBER FT³ (M³)

	Bare Chamber Storage ft³ (m³)	Chamber and Stone Foundation Depth in. (mm)		
		6 (150)	12 (300)	18 (450)
SC-740 Chamber	45.9 (1.3)	74.9 (2.1)	81.7 (2.3)	88.4 (2.5)

Note: Assumes 6" (150 mm) stone above chambers, 6" (150 mm) row spacing and 40% stone porosity.

AMOUNT OF STONE PER CHAMBER

ENGLISH TONS (yds³)	Stone Foundation Depth		
	6"	12"	16"
SC-740	3.8 (2.8)	4.6 (3.3)	5.5 (3.9)
METRIC KILOGRAMS (m³)	150 mm	300 mm	450 mm
SC-740	3,450 (2.1)	4,170 (2.5)	4,490 (3.0)

Note: Assumes 6" (150 mm) of stone above and between chambers.

VOLUME EXCAVATION PER CHAMBER YD³ (M³)

	Stone Foundation Depth		
	6 (150)	12 (300)	18 (450)
SC-740	5.5 (4.2)	6.2 (4.7)	6.8 (5.2)

Note: Assumes 6" (150 mm) of row separation and 18" (450 mm) of cover. The volume of excavation will vary as depth of cover increases.



Infiltration Trench TC-10



Design Considerations

- Accumulation of Metals
- Clogged Soil Outlet Structures
- Vegetation/Landscape Maintenance

Description

An infiltration trench is a long, narrow, rock-filled trench with no outlet that receives stormwater runoff. Runoff is stored in the void space between the stones and infiltrates through the bottom and into the soil matrix. Infiltration trenches perform well for removal of fine sediment and associated pollutants. Pretreatment using buffer strips, swales, or detention basins is important for limiting amounts of coarse sediment entering the trench which can clog and render the trench ineffective.

Targeted Constituents

☑	Sediment	■
☑	Nutrients	■
☑	Trash	■
☑	Metals	■
☑	Bacteria	■
☑	Oil and Grease	■
☑	Organics	■

Legend ***(Removal Effectiveness)***

- ● Low
- ■ High
- ▲ Medium

California Experience

Caltrans constructed two infiltration trenches at highway maintenance stations in Southern California. Of these, one failed to operate to the design standard because of average soil infiltration rates lower than that measured in the single infiltration test. This highlights the critical need for appropriate evaluation of the site. Once in operation, little maintenance was required at either site.

Advantages

- Provides 100% reduction in the load discharged to surface waters.
- An important benefit of infiltration trenches is the approximation of pre-development hydrology during which a significant portion of the average annual rainfall runoff is infiltrated rather than flushed directly to creeks.
- If the water quality volume is adequately sized, infiltration trenches can be useful for providing control of channel forming (erosion) and high frequency (generally less than the 2-year) flood events.

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- As an underground BMP, trenches are unobtrusive and have little impact of site aesthetics.

Limitations

- Have a high failure rate if soil and subsurface conditions are not suitable.
- May not be appropriate for industrial sites or locations where spills may occur.
- The maximum contributing area to an individual infiltration practice should generally be less than 5 acres.
- Infiltration basins require a minimum soil infiltration rate of 0.5 inches/hour, not appropriate at sites with Hydrologic Soil Types C and D.

B SOIL SEE ATTACHED GEOTECH SHEET

- If infiltration rates exceed 2.4 inches/hour, then the runoff should be fully treated prior to infiltration to protect groundwater quality.
- Not suitable on fill sites or steep slopes.
- Risk of groundwater contamination in very coarse soils.
- Upstream drainage area must be completely stabilized before construction.
- Difficult to restore functioning of infiltration trenches once clogged.

STORM TECH SYSTEMS INCLUDE PRETREATMENT AREA

Design and Sizing Guidelines

- Provide pretreatment for infiltration trenches in order to reduce the sediment load. Pretreatment refers to design features that provide settling of large particles before runoff reaches a management practice, easing the long-term maintenance burden. Pretreatment is important for all structural stormwater management practices, but it is particularly important for infiltration practices. To ensure that pretreatment mechanisms are effective, designers should incorporate practices such as grassed swales, vegetated filter strips, detention, or a plunge pool in series.
- Specify locally available trench rock that is 1.5 to 2.5 inches in diameter.
- Determine the trench volume by assuming the WQV will fill the void space based on the computed porosity of the rock matrix (normally about 35%).
- Determine the bottom surface area needed to drain the trench within 72 hr by dividing the WQV by the infiltration rate.

$$d = \frac{WQV + RFV}{SA}$$

- Calculate trench depth using the following equation:

where:

D = Trench depth

WQV	=	Water quality volume
RFV	=	Rock fill volume
SA	=	Surface area of the trench bottom

- The use of vertical piping, either for distribution or infiltration enhancement shall not be allowed to avoid device classification as a Class V injection well per 40 CFR146.5(e)(4).
- Provide observation well to allow observation of drain time.
- May include a horizontal layer of filter fabric just below the surface of the trench to retain sediment and reduce the potential for clogging.

Construction/Inspection Considerations

Stabilize the entire area draining to the facility before construction begins. If impossible, place a diversion berm around the perimeter of the infiltration site to prevent sediment entrance during construction. Stabilize the entire contributing drainage area before allowing any runoff to enter once construction is complete.

Performance

Infiltration trenches eliminate the discharge of the water quality volume to surface receiving waters and consequently can be considered to have 100% removal of all pollutants within this volume. Transport of some of these constituents to groundwater is likely, although the attenuation in the soil and subsurface layers will be substantial for many constituents.

Infiltration trenches can be expected to remove up to 90 percent of sediments, metals, coliform bacteria and organic matter, and up to 60 percent of phosphorus and nitrogen in the infiltrated runoff (Schueler, 1992). Biochemical oxygen demand (BOD) removal is estimated to be between 70 to 80 percent. Lower removal rates for nitrate, chlorides and soluble metals should be expected, especially in sandy soils (Schueler, 1992). Pollutant removal efficiencies may be improved by using washed aggregate and adding organic matter and loam to the subsoil. The stone aggregate should be washed to remove dirt and fines before placement in the trench. The addition of organic material and loam to the trench subsoil may enhance metals removal through adsorption.

Siting Criteria

The use of infiltration trenches may be limited by a number of factors, including type of native soils, climate, and location of groundwater table. Site characteristics, such as excessive slope of the drainage area, fine-grained soil types, and proximate location of the water table and bedrock, may preclude the use of infiltration trenches. Generally, infiltration trenches are not suitable for areas with relatively impermeable soils containing clay and silt or in areas with fill.

As with any infiltration BMP, the potential for groundwater contamination must be carefully considered, especially if the groundwater is used for human consumption or agricultural purposes. The infiltration trench is not suitable for sites that use or store chemicals or hazardous materials unless hazardous and toxic materials are prevented from entering the trench. In these areas, other BMPs that do not allow interaction with the groundwater should be considered.

The potential for spills can be minimized by aggressive pollution prevention measures. Many municipalities and industries have developed comprehensive spill prevention control and countermeasure (SPCC) plans. These plans should be modified to include the infiltration trench and the contributing drainage area. For example, diversion structures can be used to prevent spills from entering the infiltration trench. Because of the potential to contaminate groundwater, extensive site investigation must be undertaken early in the site planning process to establish site suitability for the installation of an infiltration trench.

Longevity can be increased by careful geotechnical evaluation prior to construction and by designing and implementing an inspection and maintenance plan. Soil infiltration rates and the water table depth should be evaluated to ensure that conditions are satisfactory for proper operation of an infiltration trench. Pretreatment structures, such as a vegetated buffer strip or water quality inlet, can increase longevity by removing sediments, hydrocarbons, and other materials that may clog the trench. Regular maintenance, including the replacement of clogged aggregate, will also increase the effectiveness and life of the trench.

Evaluation of the viability of a particular site is the same as for infiltration basins and includes:

- Determine soil type (consider RCS soil type 'A, B or C' only) from mapping and consult USDA soil survey tables to review other parameters such as the amount of silt and clay, presence of a restrictive layer or seasonal high water table, and estimated permeability. The soil should not have more than 30 percent clay or more than 40 percent of clay and silt combined. Eliminate sites that are clearly unsuitable for infiltration.

- Groundwater separation should be at least 3 m from the basin invert to the measured ground water elevation. There is concern at the state and regional levels of the impact on groundwater quality from infiltrated runoff, especially when the separation between groundwater and the surface is small.

- Location away from buildings, slopes and highway pavement (greater than 6 m) and wells and bridge structures (greater than 30 m). Sites constructed of fill, having a base flow or with a slope greater than 15 percent should not be considered.

- Ensure that adequate head is available to operate flow splitter structures (to allow the basin to be offline) without ponding in the splitter structure or creating backwater upstream of the splitter.

- Base flow should not be present in the tributary watershed.

Secondary Screening Based on Site Geotechnical Investigation

- At least three in-hole conductivity tests shall be performed using USBR 7300-89 or Bouwer-Rice procedures (the latter if groundwater is encountered within the boring), two tests at different locations within the proposed basin and the third down gradient by no more than approximately 10 m. The tests shall measure permeability in the side slopes and the bed within a depth of 3 m of the invert.

- The minimum acceptable hydraulic conductivity as measured in any of the three required test holes is 13 mm/hr. If any test hole shows less than the minimum value, the site should be disqualified from further consideration.

- Exclude from consideration sites constructed in fill or partially in fill unless no silts or clays are present in the soil boring. Fill tends to be compacted, with clays in a dispersed rather than flocculated state, greatly reducing permeability.

- The geotechnical investigation should be such that a good understanding is gained as to how the stormwater runoff will move in the soil (horizontally or vertically) and if there are any geological conditions that could inhibit the movement of water.

Maintenance

Infiltration trenches required the least maintenance of any of the BMPs evaluated in the Caltrans study, with approximately 17 field hours spent on the operation and maintenance of each site. Inspection of the infiltration trench was the largest field activity, requiring approximately 8 hr/yr.

In addition to reduced water quality performance, clogged infiltration trenches with surface standing water can become a nuisance due to mosquito breeding. If the trench takes more than 72 hours to drain, then the rock fill should be removed and all dimensions of the trench should be increased by 2 inches to provide a fresh surface for infiltration.

Cost

Construction Cost

Infiltration trenches are somewhat expensive, when compared to other stormwater practices, in terms of cost per area treated. Typical construction costs, including contingency and design costs, are about $5 per ft^3 of stormwater treated (SWRPC, 1991; Brown and Schueler, 1997). Actual construction costs may be much higher. The average construction cost of two infiltration trenches installed by Caltrans in southern California was about $50/$ft^3$; however, these were constructed as retrofit installations.

Infiltration trenches typically consume about 2 to 3 percent of the site draining to them, which is relatively small. In addition, infiltration trenches can fit into thin, linear areas. Thus, they can generally fit into relatively unusable portions of a site.

Maintenance Cost

One cost concern associated with infiltration practices is the maintenance burden and longevity. If improperly sited or maintained, infiltration trenches have a high failure rate. In general, maintenance costs for infiltration trenches are estimated at between 5 percent and 20 percent of the construction cost. More realistic values are probably closer to the 20-percent range, to ensure long-term functionality of the practice.

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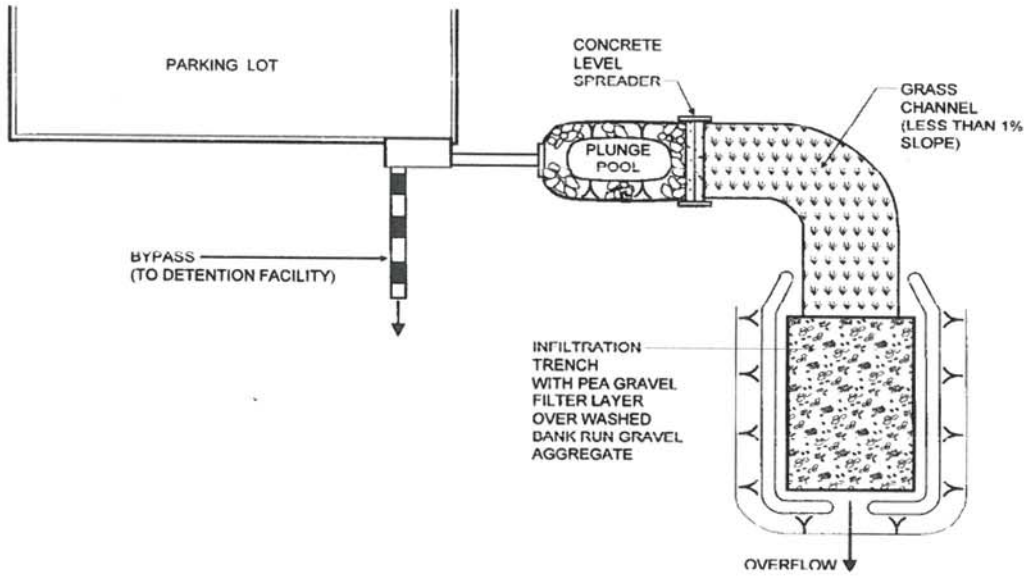
Information Resources

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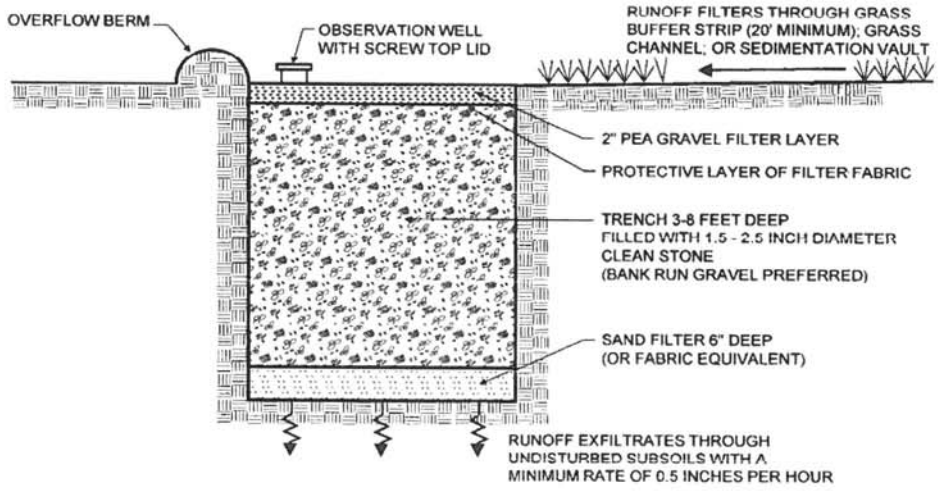
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PLAN VIEW



SECTION

STORM CHAMBERS DMA AND CUMULATIVE Vbmp

Storm Chambers

BASIN NAME	A TOTAL	Vu	Vbmp (in-acre)	Vbmp (ft-acre)	Vbmp (ft^3)
E-9	0.99	0.29	**0.2871**	**0.023925**	**1042.173**
E-16	0.66	0.59	**0.3894**	**0.03245**	**1413.522**
E-5	0.5	1.08	**0.54**	**0.045**	**1960.2**
E-24	0.39	0.01	**0.0039**	**0.000325**	**14.157**
E-22	0.76	0.05	**0.038**	**0.003166667**	**137.94**
				SUM	**4567.992**

STORM
CHAMBER SIZED
USED

STORMTECH MC-3500 CHAMBER

Designed to meet the most stringent industry performance standards for superior structural integrity while providing designers with a cost-effective method to save valuable land and protect water resources. The StormTech system is designed primarily to be used under parking lots, thus maximizing land usage for private (commercial) and public applications. StormTech chambers can also be used in conjunction with Green Infrastructure, thus enhancing the performance and extending the service life of these practices.



StormTech MC-3500 Chamber (not to scale)

Nominal Chamber Specifications

Size (L x W x H)	90" x 77" x 45" (2,286 x 1,956 x 1,143 mm)
Chamber Storage	109.9 ft³ (3.11 m³)
Min. Installed Storage*	175.0 ft³ (4.96 m³)
Weight	134 lbs (60.8 kg)

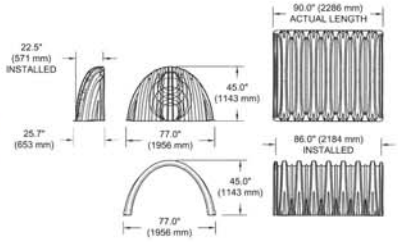
*Assumes a minimum of 12" (300 mm) of stone above, 9" (230 mm) of stone below chambers, 9" (230 mm) of stone between chambers/end caps and 40% stone porosity.

StormTech MC-3500 End Cap (not to scale)

Nominal Chamber Specifications

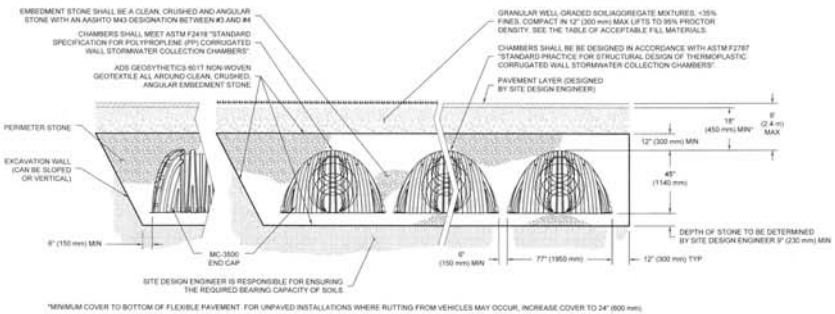
Size (L x W x H)	26.5" x 71" x 45.1" (673 x 1,803 x 1,145 mm)
End Cap Storage	14.9 ft³ (0.42 m³)
Min. Installed Storage*	45.1 ft³ (1.28 m³)
Weight	49 lbs (22.2 kg)

*Assumes a minimum of 12" (300 mm) of stone above, 9" (230 mm) of stone below, 6" (150 mm) of stone perimeter, 6" (150 mm) of stone between chambers/end caps and 40% stone porosity.



Shipping

15 chambers/pallet	7 end caps/pallet	7 pallets/truck



*MINIMUM COVER TO BOTTOM OF FLEXIBLE PAVEMENT. FOR UNPAVED INSTALLATIONS WHERE RUTTING FROM VEHICLES MAY OCCUR, INCREASE COVER TO 24" (600 mm).

THE INSTALLED CHAMBER SYSTEM SHALL PROVIDE THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS SECTION 12.12 FOR EARTH AND LIVE LOADS, WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.

STORAGE VOLUME PER CHAMBER FT³ (M³)

	Bare Chamber Storage ft³ (m³)	Chamber and Stone Foundation Depth in. (mm)			
		9" (230 mm)	12" (300 mm)	15" (375 mm)	18" (450 mm)
MC-3500 Chamber	109.9 (3.11)	175.0 (4.96)	179.9 (5.09)	184.9 (5.24)	189.9 (5.38)
MC-3500 End Cap	14.9 (.42)	45.1 (1.28)	46.6 (1.32)	48.3 (1.37)	49.9 (1.41)

Note: Assumes 6" (150 mm) row spacing, 40% stone porosity, 12" (300 mm) stone above and includes the bare chamber/end cap volume.



AMOUNT OF STONE PER CHAMBER

ENGLISH TONS (yds³)	Stone Foundation Depth			
	9"	12"	15"	18"
MC-3500 Chamber	8.5 (6.0)	9.1 (6.5)	9.7 (6.9)	10.4 (7.4)
MC-3500 End Cap	3.9 (2.8)	4.1 (2.9)	4.3 (3.1)	4.5 (3.2)
METRIC KILOGRAMS (m³)	**230 mm**	**300 mm**	**375 mm**	**450 mm**
MC-3500 Chamber	7711 (4.6)	8255 (5.0)	8800 (5.3)	9435 (5.7)
MC-3500 End Cap	3538 (2.1)	3719 (2.2)	3901 (2.4)	4082 (2.5)

Note: Assumes 12" (300 mm) of stone above and 6" (150 mm) row spacing and 6" (150 mm) of perimeter stone in front of end caps.

VOLUME EXCAVATION PER CHAMBER YD³ (M³)

	Stone Foundation Depth			
	9" (230 mm)	12" (300 mm)	15" (375mm)	18" (450 mm)
MC-3500 Chamber	11.9 (9.1)	12.4 (9.5)	12.8 (9.8)	13.3 (10.2)
MC-3500 End Cap	4.0 (3.1)	4.1 (3.2)	4.3 (3.3)	4.4 (3.4)

Note: Assumes 6" (150 mm) of separation between chamber rows and 24" (600 mm) of cover. The volume of excavation will vary as depth of cover increases.



AREA CALCULATION FOR THE Vbmp

*ATTACHMENTS ARE ON THE FOLLOWING PAGES

*ATTACHMENTS:

STORM CHAMBERS

TYPE:

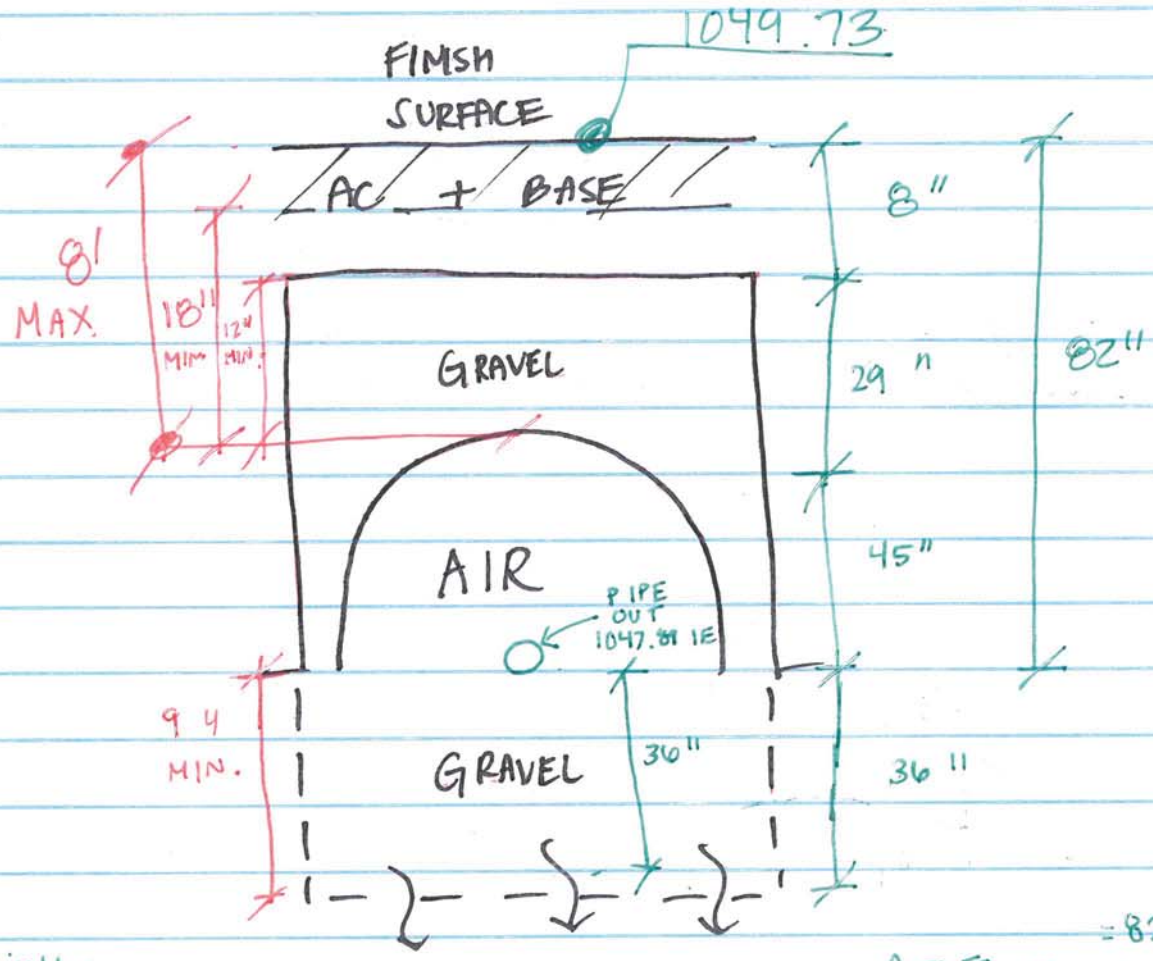
MC-3500
STORMTECH CHAMBER

AC + BASE:

4" ASPHALTIC CONCRETE PAVE OVER 4" OF CLASS II AGG. BASE
(4.0 - 6.0)
(FROM SOILS REPORT)

BORING LOG:

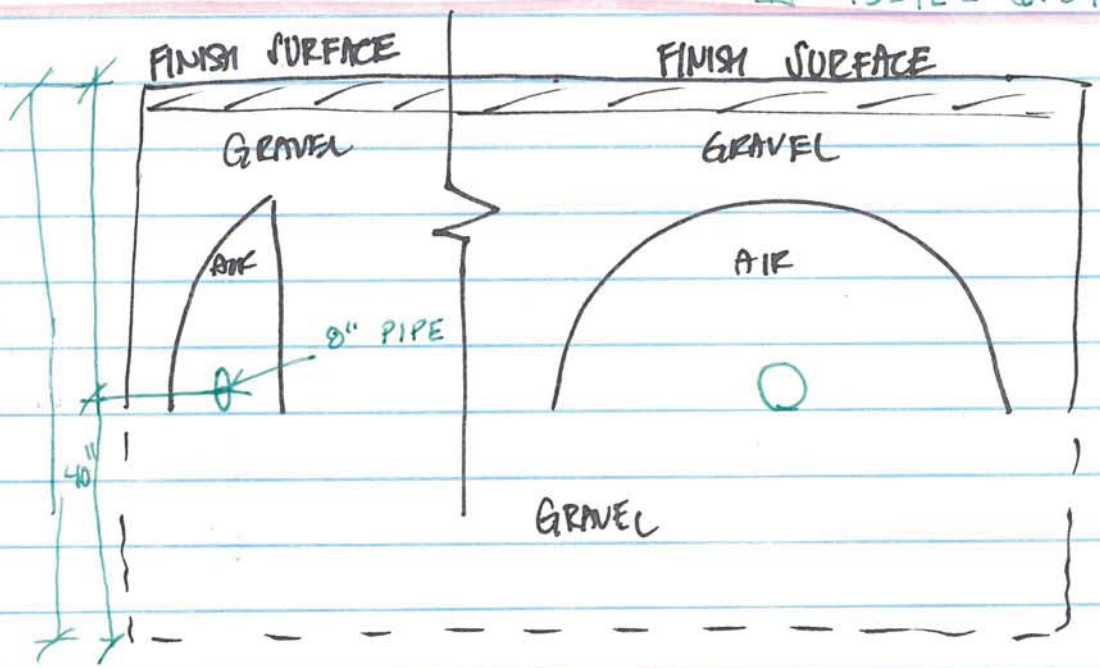
B-1: 2.4 in/hr
W/ SAFETY FACTOR = 1.3 in/hr.



= 82.06"
Δ = FS - IE = 6.84'

MECHANICS INFO:

AREA OF 8" CIRCLE = $(\pi)(r^2)$
$= (\pi)(4)^2$
$A = 50.26 in^2$
11.8"

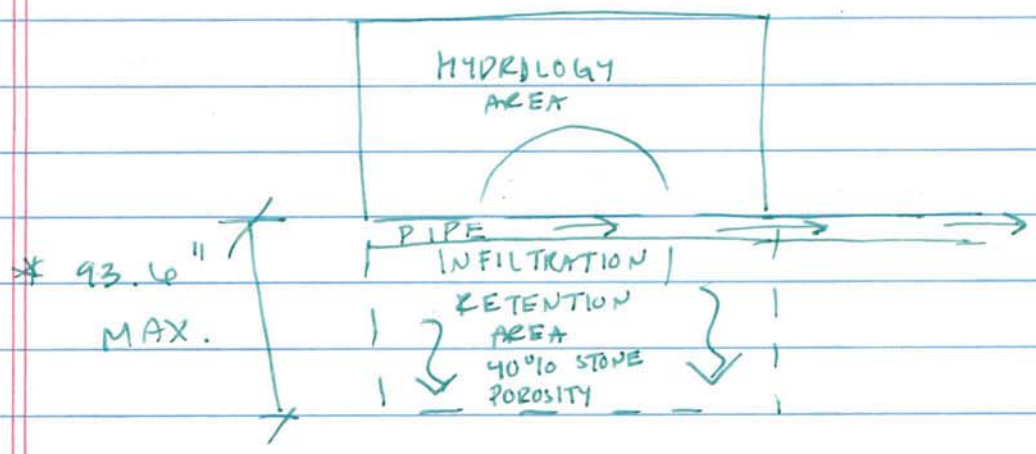


STORM CHAMBERS

$V_{BMP} = 4567.992$ CF

TC-10 = 72 hours (drawdown)

Infiltration = 1.3 in/hr



$$\text{Max Deptn} = \frac{72 \text{ hours}}{1.3 \text{ in/hr}} = 93.6 \text{ inches} = 7.8 \text{ ft}$$

$$\text{AREA} = \frac{V_{BMP}}{\text{Deptn}} = \frac{4567.992 \text{ ft}^3}{(7.8 \text{ ft})(0.4)} = 1464.1 \text{ ft}^2$$

Needed to achieve water quality volume (V_{BMP}) at max Deptn

Deptn Chosen = 3ft

$$\frac{V_{BMP}}{\text{Deptn}} = \frac{4567.992 \text{ ft}^3}{(3\text{ft})(0.4)} = 3806.66 \text{ ft}^2 = 3807 \text{ ft}^2$$

Needed to achieve water quality volume (V_{BMP})

FOOTPRINT = 12443.22 SF

SHEETS FROM SOIL'S REPORT

URS

1950 N.Stemmons Freeway, Suite 6000
Dallas, TX 75207
25338344.00006

Memorandum

2020 E. First Street, Suite 400
Santa Ana, CA 92705
Tel - (714) 835-6886
Fax - (714) 667-7147

TO: **Richard Carson**

FROM: **Michael Smith, G.E., Praveen Yerra, EIT**

DATE: **March 3, 2010**

SUBJECT: **Percolation Testing**
Temecula Regional Hospital, UHS Temecula, California
URS Job No. 25338344

1.0 INTRODUCTION

The purpose of this memo is to present the results of percolation testing for the subject project. This memorandum contains the description of the field investigation and testing conducted for the United Health Services in Temecula, California to evaluate the potential for percolation basins at the proposed Temecula Regional Hospital.

2.0 SITE LOCATION

The proposed Temecula Regional Hospital site is located to the west of the intersection of Temecula Parkway (Hwy 79) and Country Glenn way in the city of Temecula in Riverside County, California and is shown in figure 1 - Site vicinity map.

3.0 EXPLORATION PLAN

3.1 SUBSURFACE INVESTIGATION

Our field exploration for the purpose of the percolation testing involved drilling five hollow stem auger borings (B-1 through B-5) to depths of 16.5 feet in various locations of the site as shown in Figure 2-Site exploration plan. The borings were drilled using a truck-mounted CME 75 drill rig,

equipped with 8-inch diameter hollow-stem-auger drilling equipment, by our subcontractor, 2R Drilling of Chino, California. Earth materials encountered within the exploratory borings were classified and logged in accordance with the Unified Soil Classification System. Approximate locations of the borings are shown on Figure 2.

When subsurface conditions permitted, relatively undisturbed samples and Standard Penetration Tests (SPT) were performed in an alternating order at 5 feet intervals. The undisturbed samples were obtained using a California Soil Sampler (2.4 inch inside diameter). The SPTs were performed with a SPT sampler (1.4 inch inside diameter) without liners in accordance with the ASTM D 1586 guidelines. Both SPT and relatively undisturbed samples were driven 18 inches into the subsurface soils using a 140-pound automatic hammer with successive 30-inch drops. The number of blows required to drive the samplers into the subsurface soils was recorded at 6-inch intervals. The total number of blows required to drive the samplers the last 12 inches is recorded on the boring logs. Furthermore, bulk samples were taken from the upper 5 feet of each boring. Samples were placed in sealed containers and transported to our laboratory for testing. The boring logs are presented in Attachment A of this memorandum

Following drilling and sampling, a 3-inch diameter perforated casing was installed between depths of 5 to 15 feet below the existing ground surface and blank pipe above a depth of 5 feet, in borings B-1 through B-5, for percolation testing. In all five borings, the annular space around the perforated pipe was backfilled with ¾-inch well graded gravel to avoid the collapse / caving of the sidewalls of the test holes. All the boreholes were filled with water for pre-soaking before the actual test.

3.2 LABORATORY TESTING

In order to evaluate the soil classification of the onsite soils, laboratory tests were performed on the collected samples of the materials encountered during our investigation. Laboratory tests included the determination of in-place moisture content and dry density and grain size distribution. Results of the laboratory tests are provided in Attachment B, and test data are also presented on the exploration boring logs (Attachment A).

3.3 SUBSURFACE CONDITIONS

The general subsurface conditions for the site were evaluated using the findings of the five borings for the project.

The subsurface materials encountered in the percolation test borings at the existing grade generally consist of approximately 10 to 15 feet of interbedded silty sand and clayey sand materials at some locations the native is underlain by poorly graded sand material. The silty sand/clayey sand material had 15 to 35 percent passing the No. 200 sieve and poorly graded sand with 3 to 4 percent passing the No. 200 sieve. The soils were noted to be loose to medium dense based on the SPT blow count information.

3.4 GROUNDWATER

Groundwater was not encountered in any of the five borings drilled in the area investigated for potential percolation basin drilled to a maximum depth of 16.5 feet.

3.5 USDA SOIL SURVEY DATA

Data from the United States Department of Agriculture (USDA) soil survey maps and soil survey tables for the site were reviewed. The data for the subject site references Map Unit —Riverside County Western Riverside Area, California (CA679). Based on the available data, the soils at the project site are delineated by USDA are shown in Figure 3. Also, the details of the type of soils that are available at the site are compiled in Table 1.

TABLE 1: USDA SOIL SURVEY DATA

WESTERN RIVERSIDE AREA, CALIFORNIA (CA 679)			
Map Unit Symbol	**Map Unit Name**	**Hydrological Soil Group**	**USCS Classification**
GtA	Grangeville fine sandy loam, drained, 0 to 2 percent slopes	B	SM
GyC2	Greenfield sandy loam, 2 to 8 percent slopes, eroded	B	SM
RaB2	Ramona sandy loam, 2 to 5 percent slopes, eroded	B	SM
VlC2	Visalia sandy loam, 0 to 8 percent slopes, eroded	B	SM
VmA	Visalia fine sandy loam, 0 to 2 percent slopes	B	SM

Based on the available data the majority of the site soils are classified as Visalia fine sandy loam, 0 to 2 percent slopes with a map unit symbol VmA. Soils (in the upper 10 feet) are given a USCS soil classification as SM and SC and are anticipated to have a percolation rate between than 0.14 inches/hour to 1.42 inches/hour when thoroughly wet. These soils would have a very low to moderately low rate of water transmission.

3.6 PERCOLATION TESTING

Falling-head Percolation tests were performed in each of the four borings drilled within the potential percolation basin area utilizing the test procedure outlined by United States Bureau of Reclamation (USBR, 2001).

Prior to performing the percolation tests, all the sites were pre-soaked by filling the perforated casings with clear water. Following an approximately 24 hour pre-soak, the test borings were refilled with water to the existing ground surface. A water hose connected to a water tank was utilized to provide water. From a fixed reference point, the drop in water level was then measured at approximately 30-minute intervals.

In borings B-2, B-3 and B-4 (15-foot cased depth), the drop in water level was less than one-half of the wetted depth after ten consecutive trials of 30 minute intervals. Therefore, this test was continued over a period of 5-hours with water level readings taken at 30-minute intervals and the sixth hour with water level readings taken at 10-minute intervals. The percolation tests yielded percolation rates ranging from 0.1 to 0.8 inches/hour. In borings B-1 and B-5 (15-foot cased

depth), the drop in water level was higher than one-half of the wetted depth after 10 consecutive trials of 10 minute intervals. Therefore, the test was continued over a period of 3-hours with water level readings taken at 10-minute intervals. The percolation tests yielded percolation rates ranging from 2.6 to 3.4 inches/hour. The percolation test data and calculation sheets are presented in Attachment C.

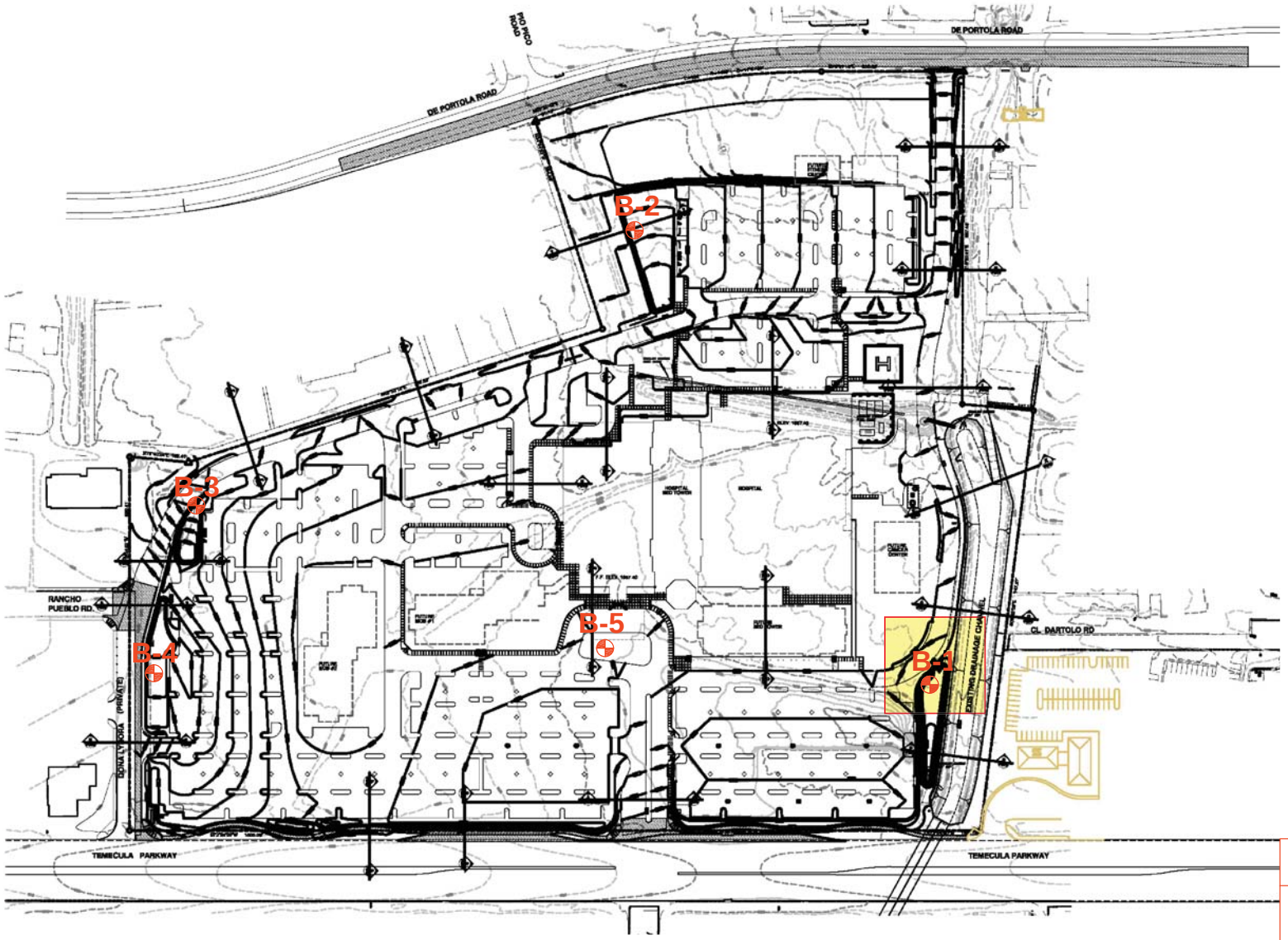
A summary of the results of percolation tests is presented in Table 2.

TABLE 2: SUMMARY OF PERCOLATION TEST RESULTS

Boring/Test Number	Drilled Depth Below Existing Ground (feet)	Approximate Percolation Test Depth Interval Below Existing Ground (feet)	Percolation Rate (gallons/sq. ft./day)	Percolation Rate (inches/hour)
B-1	16.5	5 – 16.5	39.7	2.6
B-2	16.5	5 – 16.5	11.3	0.8
B-3	16.5	5 – 16.5	1.5	0.1
B-4	16.5	5 – 16.5	6.6	0.4
B-5	16.5	5 – 16.5	50.4	3.4

4.0 CONCLUSIONS

Based on the data presented herein, the percolation rate is found to be less than 0.5 inches/hour in B-3 and B-4 but is higher than 0.5 inches/hour in the rest of the borings. Based on the criteria set forth by Riverside County, for a site to be considered a potential percolation basin site, the percolation rate should be higher than 0.5 inches/hour. From the percolation rate calculations presented in Attachment C, the locations where borings B-3 and B-4 are drilled are not suitable as a percolation basin. The locations where borings B-1, B-2 and B-5 are drilled, are potential percolation basin sites with percolation rates higher than 0.5 inches/hour.



NOT TO SCALE

B-5 LEGEND

URS Boring and Percolation Testing Location

URS

Site Exploration Plan

Proj. No.: 25338344	Date: February 2010
Project: UHS Temecula Regional Hospital Percolation Testing, Temecula, CA	Figure: 2

NOT APPLICABLE*

Attachment 1e: Structural Pollutant Control BMP Checklist

Provide the following items for each Structural BMP selected
Refer to Figure 5-2: *Stormwater Pollutant Control Structural BMP Selection Flow Chart*

DMA ID No. | Structural BMP ID No. | Construction Plan Sheet No.

☐ Worksheet B.3-1 Structural BMP Feasibility: Project-Scale BMP Feasibility Analysis

☐ Worksheet C.4-1: Categorization of Infiltration Feasibility Condition *Refer to Appendices C and D to complete.*

☐ Not included because the entire project will use harvest and use BMPs

☐ Worksheet D.5-1 Infiltration & partial retention Safety Factor

Structural BMP Selection and Design (Chapter 5.5) complete an include the applicable worksheet(s) found in appendix B and design criteria checklists from the associated fact sheets found in appendix E for selected Structural BMP(s):

☐ Worksheet B.6-1 - Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below)

☐ Retention by harvest and use (HU-1)
- ☐ Continuous simulation Model

☐ Worksheet B.4-1
- ☐ Infiltration basin (INF-1)
- ☐ Bioretention (INF-2)
- ☐ Permeable pavement (INF-3)

☐ Worksheet B.5-1
- ☐ Biofiltration with partial retention (PR-1)
- ☐ Biofiltration (BF-1)
  - ☐ Biofiltration with Nutrient Sensitive Media Design (BF-2)
  - ☐ Identification and Narrative of Receiving Water Pollutants of Concern
- ☐ Proprietary Biofiltration (BF-3)
  - ☐ Appendix F checklist
  - ☐ Identification and Narrative of Receiving Water Pollutants of Concern

☐ Worksheet B.5-3 Minimum Footprint

☐ Worksheet B.5-4 Biofiltration + Storage

☐ Selected BMPs have been designed to address the entire DCV. The DMA is compliant with Pollution Control BMP sizing requirements. **STOP ***

☐ Other (describe in discussion section below)

* NOTE: See Temecula Valley Hospital Master Plan Update Water Quality Overview Memo (2nd page of this Report) for more information.

☐ Worksheet B.6-1 - Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below)
- ☐ Describe in discussion section below why the remaining BMP size could not fit on site.
- ☐ Identification and Narrative of Receiving Water Pollutants of Concern
- ☐ Selection of Flow-Thru Treatment Control BMPs with high or medium effectiveness
  - ☐ FT-1 Vegetated swales
  - ☐ FT-2 Media Filters
  - ☐ FT-3 Sand Filters
  - ☐ FT-4 Dry Extended Detention Basin
  - ☐ FT-5 Proprietary flow-thru treatment control
- ☐ Pollutant Control Offsite Alternative Compliance Participation form
- ☐ Water Quality Equivalency Worksheets[20]

NOT APPLICABLE*

Purpose: ☐ Pre-treatment/forebay for another structural BMP ☐ Pollutant control only ☐ Combined pollutant control and hydromodification control (see Attachment 2) ☐ Other (describe in discussion section below)	
Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms (See Chapter 1.12 of the BMP Design Manual)	Doug Dentino Excel Engineering 440 State Place Escondido CA, 92029
Who will be the final owner of this BMP?	☐ HOA ☑ Property Owner ☐ City ☐ Other (describe)
Who will maintain this BMP into perpetuity?	☐ HOA ☑ Property Owner ☐ City ☐ Other (describe)

Discussion (as needed):

PROPOSED BMPS:

Detention Basin A1, A2, B, and E - Q100
Sand Filters A2, B, E, C- POLLUTANT CONTROL
Storm Chambers A - POLLUTANT CONTROL & Q100
Modular Wetland J, K, L, M & N- POLLUTANT CONTROL
Rain Garden G, H, I & J - POLLUTANT CONTROL

(Continue on subsequent pages as necessary)

* If this box is checked, Worksheet B.6-1 does not need to be filled out.

Identification and Narrative of Receiving Water and Pollutants of Concern

Describe flow path of stormwater from the project site discharge location(s), through urban storm conveyance systems as applicable, to receiving creeks, rivers, and lagoons as applicable, and ultimate discharge to the Pacific Ocean (or bay, lagoon, lake or reservoir, as applicable):
NOT APPLICABLE- SEE SHEET 11 OF ATTACHED APPROVED WQMP REPORT FOR 303 D INFORMATION

List any 303(d) impaired water bodies[3] within the path of stormwater from the project site to the Pacific Ocean (or bay, lagoon, lake or reservoir, as applicable), identify the pollutant(s)/stressor(s) causing impairment, and identify any TMDLs and/or Highest Priority Pollutants from the WQIP for the impaired water bodies (see BMP Design Manual Appendix B.6.1):

303(d) Impaired Water Body	Pollutant(s)/Stressor(s)	TMDLs / WQIP Highest Priority Pollutant

Identification of Project Site Pollutants*

*Identification of project site pollutants below is only required if flow-thru treatment BMPs are implemented onsite in lieu of retention or biofiltration BMPs. Note the project must also participate in an alternative compliance program (unless prior lawful approval to meet earlier PDP requirements is demonstrated).

Identify pollutants expected from the project site based on all proposed use(s) of the site (see BMP Design Manual Appendix B.6.):

Pollutant	Not Applicable to the Project Site	Anticipated from the Project Site	Also a Receiving Water Pollutant of Concern
Sediment	☐	☐	☐
Nutrients	☐	☐	☐
Heavy Metals	☐	☐	☐
Organic Compounds	☐	☐	☐
Trash & Debris	☐	☐	☐
Oxygen Demanding Substances	☐	☐	☐
Oil & Grease	☐	☐	☐
Bacteria & Viruses	☐	☐	☐
Pesticides	☐	☐	☐

[3] The current list of Section 303(d) impaired water bodies can be found at http://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/#impaired

Attachment 1g: Offsite Alternative Compliance Participation Form - Pollutant Control

Refer to Chapter 1.8

Onsite Project Information					
Record ID:					
Assessor's Parcel Number(s) [APN(s)]					
Quantity of Pollutant Control Debits or Credits (cubic feet) ☐ Debits ☐ Credits *See Attachment 1 of the PDP WQMP					
Offsite Project Information – Projects providing or receiving credits *(add rows as needed)*					
	Record ID:	APN(s)	Project Owner/Address	Credit/Debit	Quantity (cubic feet)
1.				☐ Credit ☐ Debit	
2.				☐ Credit ☐ Debit	
3.				☐ Credit ☐ Debit	
4.				☐ Credit ☐ Debit	
5.				☐ Credit ☐ Debit	
6.				☐ Credit ☐ Debit	
Total sum of Credits and Debits (∑Credits -∑Debits) (cubic feet)					
Additional Information					
Are offsite project(s) in the same credit trading area as the onsite project?					☐ Yes ☐ No
Will projects providing credits be completed prior to completion of projects receiving credits?					☐ Yes ☐ No
Are all deficits accounted for? If No, onsite and offsite projects must be redesigned to account for all deficits.					☐ Yes ☐ No

Provide Alternative Compliance In-Lieu Fee Agreement and supporting WQE calculations as part of this attachment.

ATTACHMENT 2

HYDROMODIFICATION CONTROL MEASURES

NOT APPLICABLE- SEE NOTE

Indicate which Items are Included behind this cover sheet:

Attachment Sequence	Contents	Checklist
Attachment 2a	Do Hydromodification Management Requirements apply? See Chapter 1.6 and Figure 1-2. * NOTE: See Temecula Valley Hospital Master Plan Update Water Quality Overview Memo (2nd page of this Report) for more information.	☐ Hydromodification management controls required. ☐ Green Streets Project (Exempt from hydromodification management requirements) **STOP *** ☐ Exempt from hydromodification management requirements ☐ Include Figure 1-2 and document any "NO" answer **STOP ***
Attachment 2b	HMP Exhibits (Required) See Checklist on the back of this Attachment cover sheet. *see Chapter 6.3.1*	☐ Combined with DMA Exhibit ☐ Included
Attachment 2c	Management of Critical Coarse Sediment Yield Areas See Chapter 6.2 and Appendix H of the BMP Design Manual.	☐ Exhibit depicting onsite/ upstream CCSYAs (Figure H.1-1) AND, documentation that project avoids CCSYA per Appendix H.1. OR ☐ Sediment Supply BMPs implemented.
Attachment 2d	Structural BMP Design Calculations, Drawdown Calculations, & Overflow Design. See Chapter 6 & Appendix G of the BMP Design Manual	☐ Included ☐ Project is designed entirely with De-Minimus, Self–Mitigating, and/or qualifying Self-Retaining Areas. **STOP ***
Attachment 2e	Geomorphic Assessment of Receiving Channels. See Chapter 6.3.4 of the BMP Design Manual.	☐ low flow threshold is 0.1Q2 ☐ low flow threshold is 0.3Q2 ☐ low flow threshold is 0.5Q2
Attachment 2f	Vector Control Plan (Required when structural BMPs will not drain in 96 hours)	☐ Included ☐ Not required because BMPs will drain in less than 96 hours
Attachment 2g	Hydromodification Offsite Alternative Compliance form. Refer to Figure 1-3: Pathways to Participating in Offsite Alternative Compliance Program	☐ Full Compliance Onsite ☐ Offsite ACP. Document onsite structural BMPs and complete Hydromodification Offsite Alternative Compliance Participation Form, and WQE worksheets

* If this box is checked, the remainder of Attachment 2 does not need to be filled out.

Use this checklist to ensure the required information has been included on the Hydromodification Management Exhibit:

NOT APPLICABLE- SEE NOTE

- ☐ Point(s) of Compliance with name or number
- ☐ Project Site Boundary
- ☐ Project Disturbed Area Footprint
- ☐ Drainage management area (DMA) boundaries, DMA ID numbers, DMA areas (square footage or acreage), and DMA type (i.e., drains to structural BMP, self-retaining, self-mitigating, or de-minimis) Note on exhibit De-minimis areas and reason they could not be included. Include offsite areas receiving treatment to mitigate Onsite Water Quality Equivalency.
- ☐ Potential pollutant source areas and corresponding required source control BMPs (see Chapter 4, Appendix E.1, and Step 3.5)
- ☐ Proposed Site Design BMPs and surface treatments used to minimize imperviousness. Show sections, details, and dimensions of site design BMP's (tree wells, dispersion areas, rain gardens, permeable pavement, rain barrels, green roofs, etc.)
- ☐ Proposed Harvest and Use BMPs
- ☐ Underlying hydrologic soil group (Web Soil Survey)
- ☐ Existing natural hydrologic features (watercourses, seeps, springs, wetlands, pond, lake)
- ☐ Existing topography and impervious areas
- ☐ Proposed grading and impervious areas. If the project is a subdivision or spans multiple lots show pervious and impervious totals for each lot.
- ☐ Existing and proposed site drainage network and connections to drainage offsite
- ☐ Potable water wells, onsite wastewater treatment systems (septic), underground utilities
- ☐ Structural BMPs (identify location, structural BMP ID No., type of BMP, and size/detail)
- ☐ Approximate depth to groundwater at each structural BMP
- ☐ Approximate infiltration rate and feasibility (full retention, partial retention, biofiltration) at each structural BMP
- ☐ Critical coarse sediment yield areas to be protected and or conveyed through the project site.
- ☐ Temporary Construction BMPs. Include protection of source control, site design and structural BMPs during construction.

- ☐ Onsite and Offsite Critical coarse sediment yield areas to be protected
- ☐ Proposed design features and surface treatments used to minimize imperviousness
- ☐ Existing and proposed drainage boundary and drainage area to each POC (when necessary, create separate exhibits for pre-development and post-project conditions)
- ☐ Structural BMPs for hydromodification management (identify location, type of BMP, and size/detail)

* NOTE: See Temecula Valley Hospital Master Plan Update Water Quality Overview Memo (2nd page of this Report) for more information.

NOT APPLICABLE- SEE NOTE

Management of Critical Coarse Sediment Yield Areas (Attachment 2c)

Document the findings of Site-specific Critical Coarse Sediment Analysis below. Include any calculations, and additional documentation completed as part of the analysis. Refer to Chapter 6.2 and Appendix H of the City of Temecula BMP Design Manual for additional guidance.

The project effectively manages Critical Coarse Sediment Yield Areas (CCSYAs) using the following methodology:

☐ **Step A.** A Site-Specific Critical Coarse Sediment Yield Analysis was performed:

☐ **Step A.1.** Determine whether the project site is a significant source of critical coarse sediment to the channel receiving runoff (refer to CCSYA mapping in Appendix H):

☐ The project site is a significant source of Bed Sediment Supply. All channels on the project site are preserved or bypassed within the site plan. *(Complete Step A.2, below)*

☐ The project site is a source of Bed Sediment Supply. Channels identified as verified critical coarse sediment yield areas are preserved. *(Complete Step A.2, below)*

☐ The Project site is not a significant source of Bed Sediment Supply. ***(STOP,*** *supporting information provided with this checklist****)***

☐ Impacts to verified CCSYAs cannot be avoided. *(Complete Step B, below)*

☐ **Step A.2.** Project site design avoids CCSYAs and maintains sediment supply pathways, documentation is provided following this checklist. (***STOP,*** *include supporting documentation with this checklist)*

☐ **Step B.** Sediment Supply BMPs are implemented onsite to mitigate impacts of development in CCSYAs, documentation is provided following this checklist. *(****STOP,*** *include supporting documentation with this checklist)*

* NOTE: See Temecula Valley Hospital Master Plan Update Water Quality Overview Memo (2nd page of this Report) for more information.

Hydromodification Offsite Alternative Compliance Participation Form

Refer to Chapter 1.8 NOT APPLICABLE- SEE NOTE

Onsite Project Information					
Record ID:					
Assessor's Parcel Number(s) [APN(s)]					
Quantity of Hydromodification Debits or Credits (DCIA) ☐ Debits ☐ Credits *See Attachment 1 of the PDP WQMP					
Offsite Project Information – Projects providing or receiving credits *(add rows as needed)*					
	Record ID:	APN(s)	Project Owner/Address	Credit/Debit	Quantity (DCIA)
1.				☐ Credit ☐ Debit	
2.				☐ Credit ☐ Debit	
3.				☐ Credit ☐ Debit	
4.				☐ Credit ☐ Debit	
5.				☐ Credit ☐ Debit	
6.				☐ Credit ☐ Debit	
Total sum of Credits and Debits (∑Credits -∑Debits) (DCIA)					
Additional Information					
Are offsite projects in the same credit trading area as the onsite project?					☐ Yes ☐ No
Do offsite projects discharge directly to the same susceptible stream reach as the onsite project? (required for certain hydromodification scenarios)					☐ Yes ☐ No
Will projects providing credits be completed prior to completion of projects receiving credits?					☐ Yes ☐ No
Are all deficits accounted for? If No, onsite and offsite projects must be redesigned to account for all deficits.					☐ Yes ☐ No

Provide supporting WQE calculations as part of this attachment.

* NOTE: See Temecula Valley Hospital Master Plan Update Water Quality Overview Memo (2nd page of this Report) for more information.

ATTACHMENT 3

Structural BMP Maintenance Information

PRELIMINARY STAGE- NOT NEEDED

Indicate which Items are Included behind this cover sheet:

Maintenance Responsibility has been assigned to:

- ☐ Property Owner
- ☐ Special District
- ☐ City of Temecula

☐ Attachment 3 is not required because the project does not propose structural BMPs

☐ Not applicable at this time – Discretionary Project

Attachment Sequence	Contents	Checklist
Attachment 3	Standard Structural BMP Water Quality Management Plan Operation and Maintenance Agreement (BMP Design Manual Appendix A.3)	☐ Included ☐ Signed, Notarized, and Recorded* ☐ City Maintained – Do Not Record, must be reviewed & accepted by City Maintenance Dept.
Exhibit A	Legal Description	☐ Included
Exhibit B	Individual Structural BMP DMA Mapbook (WQMP Exhibits)	☐ Included ☐ Place each map on 8.5”x11” paper ☐ BMP Site layout – Clearly depict location of each BMP ☐ Legible construction details of each BMP.
Exhibit C	Structural BMP Maintenance Plan (Required)	☐ Included See Structural BMP Maintenance Information Checklist on the back of this Attachment cover sheet.
Exhibit D	Structural BMP Design Fact Sheets (Appendix E)	☐ Included

Note* Do not notarize & record until City staff has reviewed and approved the final Water Quality Management Plan Operation and Maintenance Agreement.

Use this checklist to ensure the required information has been included in the Structural BMP Maintenance Plan Exhibit:

PRELIMINARY STAGE- NOT NEEDED

Attachment 3 Exhibit C must identify:

- ☐ Purpose of the Operation and Maintenance Manual
- ☐ General description and function of all Structural BMPs implemented
- ☐ Inspection & Maintenance Documentation. Refer to Chapter 7.4
- ☐ Inspection, Maintenance, & Reporting Frequency: Refer to Chapter 7.5
- ☐ Measures to Control Maintenance Costs. Refer to Chapter 7.6
- ☐ Maintenance indicators and actions for structural BMP(s). Refer to Chapter 7.7
- ☐ Structural BMP Life Cycle Cost Analysis including Inspection, Maintenance, documentation, reporting, and replacement.

ATTACHMENT 4

PRELIMINARY STAGE- NOT NEEDED

City of Temecula PDP Structural BMP Verification for Permitted Land Development Projects

☐ Not applicable at this time – Discretionary Project

☑ Attachment 4 is not required because the project does not propose structural BMPs

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City of Temecula Structural BMP Verification Form	
Project Summary Information	
Project Name	Temecula Medical Center
Record ID (e.g., grading/improvement plan number)	
Project Address	31415 Temecula Parkway, Temecula CA
Assessor's Parcel Number(s) (APN(s))	959-080-001, 959-080-004, 959-080-007, 959-080-010
Project Watershed (Complete Hydrologic Unit, Area, and Subarea Name with Numeric Identifier)	The project site is located in Pauba Hydrologic Sub Area of the Pechanga Hydrologic Area of the Santa Margarita Hydrologic Unit (902.51).
Responsible Party for Construction Phase	
Developer's Name	Universal Health Services
Address	367 South Gulph Road King of Prussia, PA 19406
Email Address	
Phone Number	800-347-7750
Engineer of Work	Excel Engineering
Engineer's Phone Number	760-745-8118
Responsible Party for Ongoing Maintenance	
Owner's Name(s)*	Universal Health Services
Address	367 South Gulph Road King of Prussia, PA 19406
Email Address	
Phone Number	800-347-7750
*Note: If a corporation or LLC, provide information for principal partner or Agent for Service of Process. If an HOA, provide information for the Board or property manager at time of project closeout.	

NOT APPLICABLE- SEE NOTE

City of Temecula Structural BMP Verification Form Page 2 of 4				
Stormwater Structural Pollutant Control & Hydromodification Control BMPs* (List all from WQMP)				
Description/Type of Structural BMP	**Plan Sheet #**	**STRUCT-URAL BMP ID#**	**Maintenance Agreement Recorded Doc #**	**Revisions**

Note: If this is a partial verification of Structural BMPs, provide a list and map denoting Structural BMPs that have already been submitted, those for this submission, and those anticipated in future submissions.

* NOTE: See Temecula Valley Hospital Master Plan Update Water Quality Overview Memo (2nd page of this Report) for more information.

City of Temecula Structural BMP Verification Form Page 3 of 4

Checklist for Applicant to submit to City inspector:

- ☐ Photograph of each completed Structural BMP.
- ☐ Photograph(s) of each Structural BMP during the construction process to illustrate proper construction as described in the Structural BMP Fact sheets.
- ☐ Certificates of compliance for materials as required in the Structural BMP Fact sheets.
- ☐ Infiltration Tests as required in the Structural BMP Fact sheets.

By signing below, I certify that the Structural BMP(s) for this project have been constructed and all BMPs are in substantial conformance with the approved plans and applicable regulations. I understand the City reserves the right to inspect the above BMPs to verify compliance with the approved plans and City Ordinances. Should it be determined that the BMPs were not constructed to plan or code, corrective actions may be necessary before permits can be closed.

Please sign your name and seal.

Professional Engineer's Printed Name:

Robert D. Dentino

Professional Engineer's Signed Name:

Date:

City of Temecula Structural BMP Verification Form Page 4 of 4

City - OFFICIAL USE ONLY:

For City Inspector: Verification Package #: _____

City Inspector: _____

Date Project has/expects to close: _____

Date verification received from EOW: _____

By signing below, City Inspector concurs that every noted Structural BMP has been installed per plan.

City Inspector's Signature: _____ Date: _____

For Land Development Staff:

Date Received from City Inspector: _____

Land Development Submittal Reviewer: _____

Land Development Reviewer concurs that the information provided for the following Structural BMPs is acceptable to enter into the Structural BMP Maintenance verification inventory:

List **acceptable** Structural BMPs:

Land Development Reviewer's Signature: _____ Date: _____

ATTACHMENT 5
PRELIMINARY
Copy of Plan Sheets Showing Permanent Stormwater BMPs, Source Control, and Site Design

Use this checklist to ensure the required information has been included on the plans:

The plans must identify:

- ☑ Structural BMP(s) with ID numbers
- ☑ The grading and drainage design shown on the plans must be consistent with the delineation of DMAs shown on the DMA exhibit
- ☑ Improvements within City Public Right-of-Way have been designed in accordance with Appendix K: Guidance on Green Infrastructure.
- ☑ Details and specifications for construction of structural BMP(s).
- ☑ Manufacturer and part number for proprietary parts of structural BMP(s) when applicable.
- ☑ Signage indicating the location and boundary of source control, site design, and structural BMP(s) as required by City staff.
- ☑ How to access the structural BMP(s) to inspect and perform maintenance.
- ☑ Features that are provided to facilitate inspection (e.g., observation ports, cleanouts, silt posts, benchmarks or other features that allow the inspector to view necessary components of the structural BMP and compare to maintenance thresholds)
- ☑ Include landscaping plan sheets showing vegetation and amended soil requirements for vegetated structural BMP(s), amended soil areas, dispersion areas, tree-wells, and self-mitigating areas
- ☑ All BMPs must be fully dimensioned on the plans
- ☑ Include all Construction stormwater, source control, and site design measures described in the WQMP. Can be included as separate plan sheets as necessary.
- ☑ When proprietary BMPs are used, site-specific cross section with outflow, inflow, and model number must be provided. Photocopies of general brochures are not acceptable.

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ATTACHMENT 6

PRELIMINARY DRAINAGE STUDY ATTACHED

Copy of Project's Drainage Report

Use this checklist to ensure the required information has been included on the Drainage Report:

☑ The project is required to prepare and submit a CEQA Drainage Study in compliance with Riverside County Flood Control and Water Conservation District Hydrology Manual: http://rcflood.org/downloads/Planning/Hydrology%20Manual%20-%20Complete.pdf
In addition to the guideline, the study shall include the following but not limited to:

☑ The final CEQA Drainage report shall be signed, stamped and dated by the responsible Registered Civil Engineer.

☑ In the narrative of the report please provide a summary table of: pre- and post-development C, Tc, I, A, V100, Q100 without mitigation and Q100 with mitigation for each area (or point) where drainage discharges from the project. Peak runoff rates (cfs), velocities (fps) and identification of all erosive velocities (at all points of discharge) calculations for pre-development and post-development. The comparisons should be made about the same discharge points for each drainage basin affecting the site and adjacent properties.

☑ Summary/Conclusion: Please discuss whether the proposed project would substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site? Provide reasons and mitigations proposed.

☑ Discuss whether the proposed project would substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site? Provide reasons and mitigations proposed.

☑ Discuss whether the proposed project would create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems. Provide reasons and mitigations proposed.

☑ Discuss whether the proposed project would place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map, including County Floodplain Maps. Provide reasons and mitigations proposed.

☑ Discuss whether the proposed project would place structures within a 100-year flood hazard area, which would impede or redirect flood flows.

☑ Discuss whether the proposed project would expose people or structures to a significant risk of loss, injury or death involving flooding as a result of the failure of a levee or dam.

☐ Provide existing and proposed Hydrology Maps for each phase. The maps shall show existing and proposed culverts, discharge point with A & Q, flow path direction for each drainage basin. Show existing FEMA floodplain/floodway which flow through the property. A minimum map size is 11"x17".

☐ Provide Hydrologic Soil Group Map.
☐ Provide Rainfall Isopluvials for 100 Year Rainfall Event - 6 Hours and 24 Hours Maps.
☐ The report should have numbered pages and a corresponding Table of Contents.
☐ Improvements within City Public Right-of-Way have been designed in accordance with Appendix K: Guidance on Green Infrastructure.
BMP's have been designed to safely convey the 100-year flood

If hardcopy or CD is not attached, the following information should be provided:

Title:
Prepared By:
Date:

HYDROLOGY I HYDRAULICS STUDY

Priority Development Project

FOR THE:
PRECISE GRADING PLAN FOR
TEMECULA MEDICAL CENTER
APN No. 959-080-001, 959-080-004, 959-080-007, 959-080-010
31415 Temecula Parkway, Temecula CA

PREPARED FOR:
Universal Health Services
367 South Gulph Road
King of Prussia, PA 19406
Contact Person: William Seed
Phone: 800.347.7750

PREPARED BY:
EXCEL ENGINEERING
440 State Place
Escondido, CA 92029
Tel: (760) 745-8118
Project No: 21-031

DATE PREPARED:
May 20,2022

TABLE OF CONTENTS

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- 1.1 Drainage Study Purpose
- 1.2 Existing Facilities
- 1.3 Proposed Facilities

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- 4.1 Hydrology Software
- 4.2 Hydraulics Software

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- 6.1 Storm Water Quality Management Plan (SWQMP)

7.0 Conclusion

8.0 Declaration of Responsible Charge

9.0 Attachments

Attachment 1 – Figures & Tables from the Riverside County Hydrology Manual
Attachment 2 – Watershed Map
Attachment 3 – Pre-Development Condition Exhibit
Attachment 4 – Post-Development Condition Exhibit
Attachment 5 –Rational Method Runoff Calculations

5a. CivilD Pre-Development Calculations
5b. CivilD Post-Development Calculations
5c. CivilD Mitigated Post-Development Calculations

1.0 PROJECT DESCRIPTION

1.1 Drainage Study Purpose

The purpose of this drainage study is to analyze the existing and proposed hydrology of the hospital site. We will also calculate adequacy of the proposed storm drain facilities and mitigation measures.

1.2 Existing Facilities

This first phase of this project has already been developed. The main hospital located just east of the site center has been built, as well as a storage building to the northeast of the main hospital. Existing parking lots sit to the north of the storage building, as well as to the west and southwest of the main hospital. The rest of the site consists of graded pads.

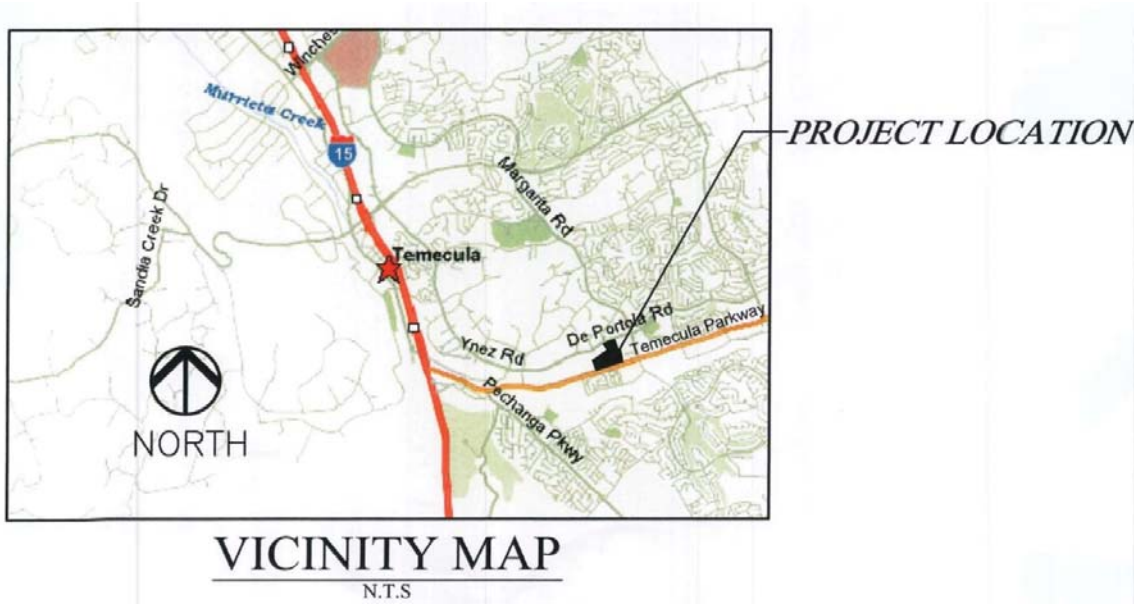
1.3 Proposed Facilities

The 31.46 Acre (9.38 Acre East +22.08 Acre West) commercial project site is located north of Temecula Parkway in Temecula, California. The project site is bordered by Temecula Parkway to the North and Dona Lynora Street to the East.

The Ultimate build out of the site will include a 3-tower hospital complex to contain 320 beds. The hospital will offer fill in-patient and out-patient services, as well as emergency services. This facility will not contain a trauma unit. There will be two medical office buildings that will have office space available to lease by all types of medical service providers. The site will also contain a cancer center, a behavioral health building, and a multi-level parking structure with a helipad. Various other ground-level parking lots are planned throughout the project.

As part of this project, associated improvements will include detention basins, sand filters, modular wetland systems, rain gardens, and storm chambers. All necessary utilities (storm, sewer, water, etc.) will be installed as part of the project.

2.0 VICINITY MAP



VICINITY MAP
N.T.S

3.0 DESCRIPTION OF WATERSHED

3.1 Existing conditions topography

The existing drainage channel is urban. Runoff from offsite is conveyed through the site. Northeast of the site a portion including De Portola Road and the above residential drain to an Existing Drainage Channel at POC #2. It enters an existing grated inlet on the intersection Portola Road and Pio Pico. From there, water enters the site via an existing 24" RCP pipe that drains to existing Independent Drainage Channel that ties into POC # 3 on Temecula Parkway. Water from offsite does not surface flow it only pipe flows directly to the channel.

The site currently has two major drainage basins that split the drainage into east and west sides. The eastern runoff currently generated is contained onsite where various curb inlets and grates collect water at low points. From here the water flows via pipes to an existing Interim Detention/Sedimentation Basin that ties into an existing RCB downstream of County Channel.

Most of the western side that is developed flows overland via cub cuts to sand filters and pipes to and the undeveloped interim condition in the westside flow overland to a pipe. Both developed and undeveloped interim condition area on the west side flow to an existing Detention Basin north of the site on Dona Lynora Drive.

The site currently has two major drainage basins that split the drainage into east and west sides. With approximately 30% of the west site draining to a POC #1 northwest to Dona Lynora Drive, north of Ranch Pueblo Road. The east side has approximately 70% of the site draining to a southeast Drainage Channel on Temecula Valley Parkway that is part of the Riverside County Flood Control District labeled as POC #3. There is a total of three drainage outfall POC 1 is for the western side and POC # 2 & 3 are for the eastern side.

A pre-developed drainage map can be found as Attachment 3 in this report.

3.2 Proposed conditions topography

The Approved Hydrology Study and BMP plan propose for the east side 8.77 acres and the west side 23.69 acres for a total of 32.46 acres. The proposed hydrology and bmp calculations will not have the same areas; pre-development and post-development area will not match.

The approved Hydrology Map and calculations do not include all areas that leave the site as seen with "W-14" on the approved report. This area and others seen on the following sheets leave the site and are not included in any calculations. The proposed calculations will follow this procedure as well and omit area draining directly into the existing drainage channel and areas leaving the site.

The proposed areas will show an area for the west side of 9.38 acres and the east side of 22.08 acres for a total of 31.46 acres. The drop in area comes from both the west side and the east side. The west side has a section of road leaving down Rancho Pueblo Road. The east side has a construction change that removes some area that was originally intended to flow through the site and now flows straight to the existing drainage channel.

The calculations will use the approved phase 1 hydrology as our "Pre-Development." Therefore, there will be a change of acres of 1.00 acres. (delta difference between 31.46 acres and 32.46 acres)

There will not be any negative impacts on the west side because in the "Pre-development calculations" the area leaving the site labeled "W-14" is 0.82 acres and we propose only 0.59 acres leaving in the proposed condition.

There will also not be any negative impacts on the east side because the area will be entering the existing drainage channel which is sized to handle this area.

(For Further Information and Exhibits on the above-mentioned area changes see the following pages)

This project proposed to install several buildings with parking lots. At the southeast part of the site, this project is proposed to build storm chambers for storm water quality.

This first phase of this project has already been developed. The main hospital located just east of the site center has been built, as well as a storage building to the northeast of the main hospital. Existing parking lots sit to the north of the storage building, as well as to the west and southwest of the main hospital. The rest of the site consists of graded pads. Phase 1 drainage BMP's include vegetative strips, vegetated swales, rain gardens and detention ponds. Most of the storm runoff from Phase 1 will flow to the infiltration gallery. During the water quality storm, the runoff will enter the gallery but during larger storms a concrete diversion box will divert flows to a 48" RCP, which ties into the existing 14'x7' RCB downstream of the channel.

The remaining approximately one-third of the site flows westerly either to the Rancho Pueblo/Dona Lynora intersection or to the existing 36" RCP in the northwestern corner of the site.

This site at Ultimate Condition will include Detention Basins (mitigation), rain gardens, vegetated swales, vegetated strips, sand filters, modular wetland systems, and storm chambers (mitigation). There are areas designated on the site for these BMP's to be installed. All flow from buildings and parking lots will be routed into the BMP's.

A Post-Developed Drainage Map can be found as Attachment 4 in this report.

3.3 Hydrologic Unit Contribution

The project site is located in Pauba Hydrologic Sub Area of the Pechanga Hydrologic Area of the Santa Margarita Hydrologic Unit (902.51).

4.0 METHODOLOGY

This study references calculations done in the drainage report done by URS Corporation rev. Dec 2010. These calculations utilized the Riverside County Flood Control and Water Conservation District (RCFC & WCD) Hydrology Manual. The Rational Method was used to determine discharges as the watershed is less than 500 acres of land. The proposed storm drain system is designed to carry flows for the 100-year storm event.

4.1 Hydrology Software

This study references calculations done in the drainage report done by URS Corporation rev. Dec 2010. The existing and proposed hydrology of the site has been analyzed in that report using the "Water Surface Pressure Gradient Package", Version 6.0, licensed by CIVILDESIGN Corporation.

4.2 Hydraulics Software

This study references calculations done in the drainage report done by URS Corporation rev. Dec 2010. The storm drain hydraulics have been analyzed using WSPGN software, Version 12.5.

4.3 Soil Type Determination

Per the Drainage Report Temecula Medical Center for the existing site, the hydrologic soil type for the entire project site is soil type C.

5.0 CALCULATIONS

The existing 100-year peak flowrates of the site is 24.8 CFS for the West Side and 48.2 CFS for the East Side, the intent of the post development calculation done as part of this report is to verify the 100-year flowrates expected from the post-developed conditions are lower than the pre-developed conditions. These numbers will be used to size the proposed storm drainage pipes and to doublecheck if the existing storm drain outlet facilities are adequate.

The updates to the site include a change in both the eastern and western watersheds due to a shift in the ridge line. The change does not affect the overall area used for the

calculations. Both areas have similar impervious values, and still fall in the same commercial land use classification used in the previous calculations.

5.1 Calculate Runoff Coefficient

"The coefficient of runoff, C-value, is used to account for factors such as rainfall Intensity, soil type and cover, pervious and impervious area, and terrain conditions. A runoff coefficient was calculated for each drainage subarea using the soil type, runoff, index number, percent impervious and rainfall intensity."

Per the drainage study in Appendix A:

"This site is to consist of buildings, paved parking lots, concrete curb and gutter, and some vegetated landscaped areas. Commercial land use generally has an impervious cover between 80 and 100 percent."

"Land use for proposed site conditions were noted as commercial, with an impervious area between 80 and 100 percent."

In brief, the areas are nearly identical in size and land use, negating any significant impact that could be caused. This change in area will result in an equivalent flow volume as calculated in the drainage study attached Attachment 3-5 in this report, with the understanding that any further changes affecting the Q100 flow such as land use, total area, or flow patterns will be considered and calculated appropriately.

5.2 Manning Roughness Coefficient

Manning Roughness Coefficients are taken from San Diego County Drainage Design Manual. Values are taken from Table A-1, Average Manning Roughness Coefficients for Pavement and Gutters, Table A-2, Average Manning Roughness Coefficients for Closed Conduits, Table A-4 Average Manning Roughness Coefficients for Larger Open Channels, and Table A-5, Average Manning roughness Coefficient for Natural Channels. Values of 0.013 for Smooth Asphalt Pavement, 0.016 for Concrete Pavement, 0.013 for PVC Pipe, 0.035 for Well-Maintained Grass Lined Channels and 0.03 for Fairly Regular Section Some Grass and Weeds, Little or No Brush are used in the hydrology calculations. Table of Manning's n value can be found in Attachment 1 in this report.

5.3 Rational Method Calculation Summary

The peak runoff values for the 100-year storm are calculated according to the Rational Method. The calculations are performed using the CIVILD software. A summary of the initial calculations is summarized in the table below:

	100 YR STORM EVENT -WEST WATERSHED		
	Pre-Development	Post-Development	Post-Development Mitigation
Q (CFS)	24.8	27.74	0.40
A (ACRE)	8.77	9.38	9.38
Tc (MIN)	14.44	7.11	5.00

Table 1. West Side Q100 Analysis Results

	100 YR STORM EVENT -EAST WATERSHED		
	Pre-Development	Post-Development	Post-Development Mitigation
Q (CFS)	48.2	62.62	1.50
A (ACRE)	23.69	22.08	22.08
Tc (MIN)	20.25	7.562	5.00

Table 2. East Side Q100 Analysis Results

CIVILD data and output files can be found in Attachment 5 of this report. Calculations for the Q2 and Q10 will be included in Final Engineering Reports this is preliminary.

By observation of the results in the summary table, the mitigated developed condition of the site will have an overall decrease in the 100-year peak flow discharge from the site.

6.0 OTHER STUDIES

6.1 Storm Water Quality Management Plan

Please see the Storm water quality management plan report that was submitted with the Precise Grading Plan and this report.

7.0 CONCLUSION

The updated watershed areas do not create any significant change in the total Q100 flow that was previously calculated for this site. The analysis of the 100-year storm event still shows that this property will effectively convey the resulting runoff.

8.0 DECLARATION OF RESPONSIBLE CHARGE

I hereby declare that I am the engineer of work for this project. That I have exercised responsible charge over the design of the project as defined in section 6703 of the business and professions codes, and that the design is consistent with current design.

I understand that the check of the project drawings and specifications by the City Temecula is confined to a review only and does not relieve me, as engineer of work, of my responsibilities for project design.

ENGINEER OF WORK
Excel Engineering
440 State Place
Escondido, CA 92029
Tel – (760)745-8118
Fax – (760)745-1890

Project Number:

_____ May 20,2022

Robert D. Dentino, RCE 45629 Date
Registration Expire: December 31, 2022

CHANGE IN HYDROLOGY AND BMP AREAS EXPLANATION (OFFISTE WATER)

The Approved Hydrology Study and BMP plan propose for the east side 8.77 acres and the west side 23.69 acres for a total of 32.46 acres. The proposed hydrology and bmp calculations will not have the same areas; pre-development and post-development area will not match.

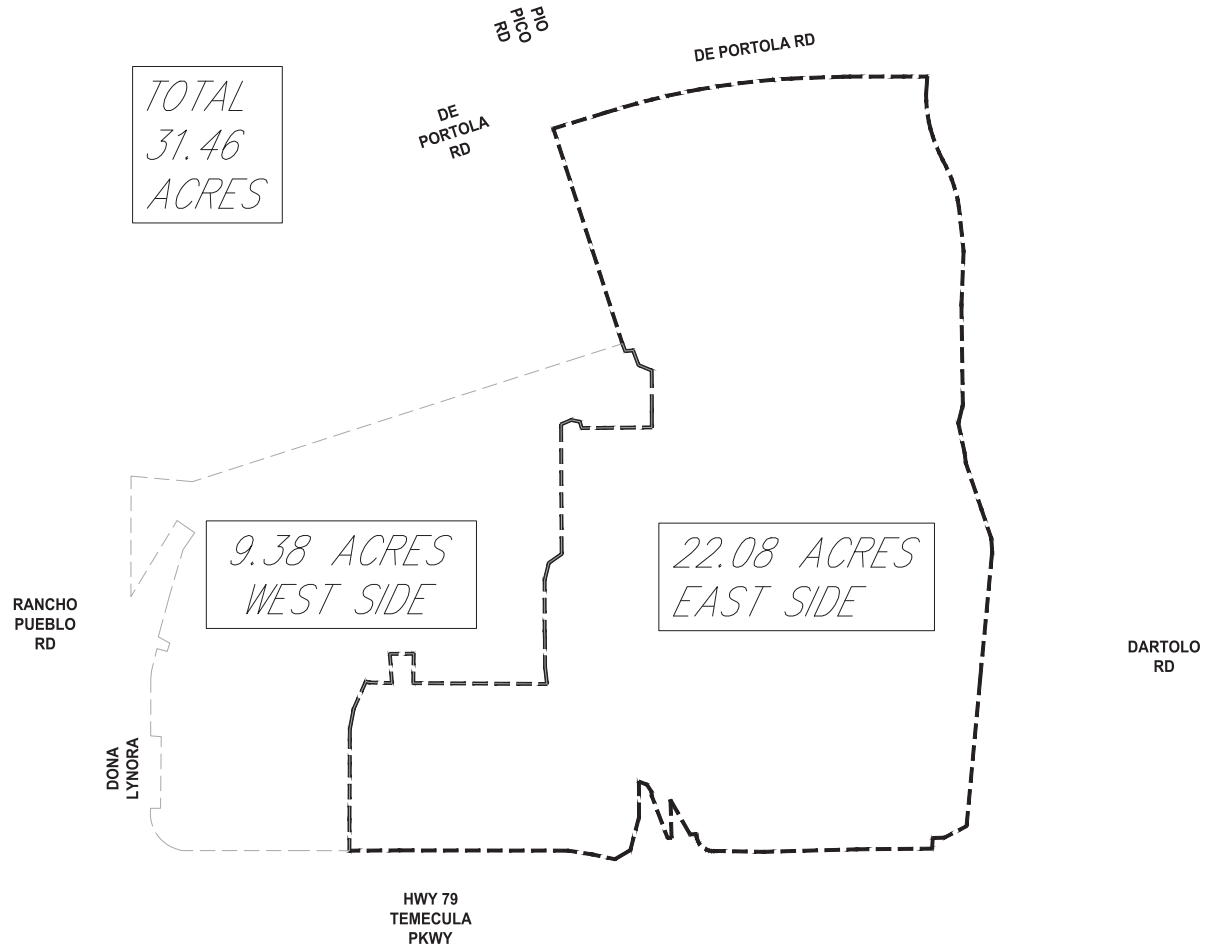
The approved Hydrology Map and calculations do not include all areas that leave the site as seen with "W-14" on the approved report. This area and others seen on the following sheets leave the site and are not included in any calculations. The proposed calculations will follow this procedure as well, and omit areas draining directly into the existing drainage channel and areas leaving the site.

The proposed areas will show an area for the west side of 9.38 acres and the east side of 22.08 acres for a total of 31.46 acres. The drop in area comes from both the west side and the east side. The west side has a section of road leaving down Rancho Pueblo Road. The east side has a construction change that removes some area that was originally intended to flow through the site and now flows straight to the existing drainage channel.

The calculations will use the approved phase 1 hydrology as our "Pre-Development." Therefore, there will be a change of acres of 1.00 acres. (delta between 31.46 acres and 32.46 acres)

There will not be any negative impacts on the west side because in the "Pre-development calculations" the area leaving the site labeled "W-14" is 0.82 acres and we propose only 0.59 acres leaving in the proposed condition.

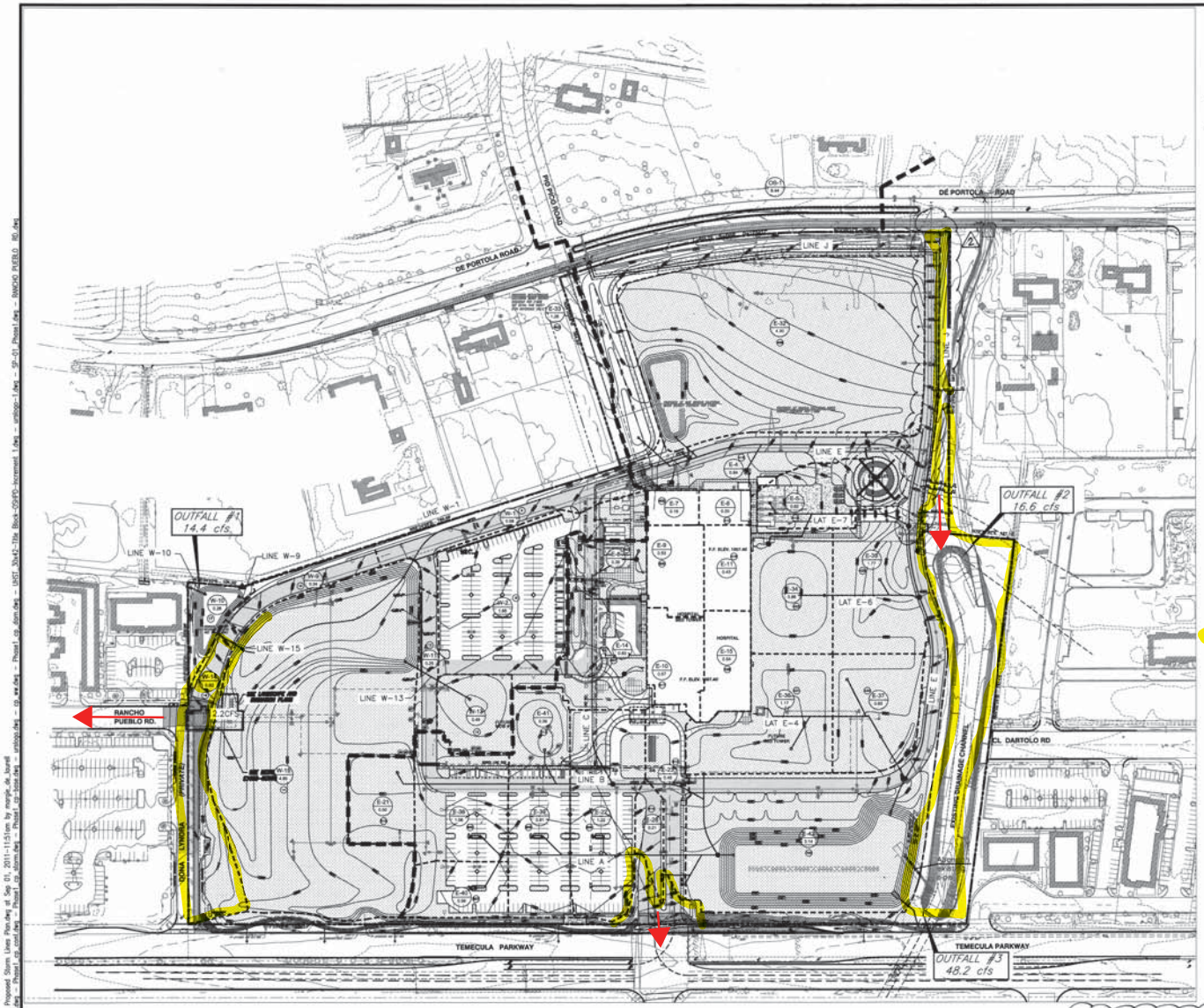
There will also not be any negative impacts on the east side because the area will be entering the existing drainage channel which is sized to handle this area.



AREA EXHIBIT

	100-YR STORM EVENT – WEST WATERSHED				
	Pre-Development (TEC Study)	Pre-Development (URS Study)	Post Development (TEC Study)	Updated Post Development (TEC Study)	Ult/Phase 1 Development (URS Study)
Q (cfs)	20.95	21.09	26.10	20.70	28.6/24.8
Velocity (ft/sec)	1.98	2.28	3.48	3.10	2.51/2.80
Area (acre)	11.11	10.55	12.60	10.60	8.78/8.77
Duration (minutes)	20.20	16.59	21.57	22.00	11.22/14.44

	100-YEAR STORM EVENT – EAST WATERSHED			
	Pre-Development (RANPAC)	Pre-Development (URS Study)	Post Development (RANPAC)	Ult/Phase 1 Development (URS Study)
Q (cfs)	60.27	47.93	63.59	53.1/48.2
Velocity (ft/sec)	13.65	4.43	7.77	4.23/3.84
Area (acre)	23.30	24.67	23.80	24.02/23.69
Duration (minutes)	14.14	21.17	20.07	10.15/20.25



LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- DRAINAGE AREA DIVIDES
- EAST/WEST DRAINAGE AREAS BOUNDARY
- A1 / 10.33 — DRAINAGE AREA / ACREAGE
- OUTFALL #1 — OUTFALL NUMBER

100 50 0 100 200

LEGEND

- PROPOSED STORM PIPE
- DRAINAGE BOUNDARY LINE
- PROPOSED INLET STRUCTURE
- DETENTION BASIN STAND PIPE
- PROPOSED HEADWALL
- PROPOSED LANDSCAPED AREA
- TO BE CONSTRUCTED WITH STREET IMPROVEMENT PLANS.
- 130 — NODE #

OUTFALL #2 - OFFSITE

DRAINAGE AREA	AREA (ACRES)	C	Itoc (in/hr)	Qtoc (cfs)
OS-1	8.44	0.83	4.6	16.6

OUTFALL #1 - WEST

DRAINAGE AREA	AREA (ACRES)	C	Itoc (in/hr)	Qtoc (cfs)
W-1	0.68	0.89	3.9	2.4
W-2	1.88	0.89	4.0	6.8
W-9	0.34	0.89	3.6	1.1
W-10	0.28	0.89	3.6	0.9
W-11	0.25	0.89	4.0	0.9
W-13	0.49	0.85	4.0	1.7
W-15	4.85	0.85	2.9	11.8
TOTAL	8.77			

RUNOFF TO RANCHO PUEBLO RD

DRAINAGE AREA	AREA (ACRES)	C	Itoc (in/hr)	Qtoc (cfs)
W-14	0.82	0.84	3.1	2.2

OUTFALL #3 - EAST

DRAINAGE AREA	AREA (ACRES)	C	Itoc (in/hr)	Qtoc (cfs)
E-4	0.84	0.89	4.0	2.9
E-5	0.62	0.89	4.8	2.7
E-6	0.20	0.89	5.1	0.9
E-7	0.15	0.89	5.1	0.7
E-8	0.38	0.89	4.5	1.5
E-9	0.53	0.89	4.7	2.2
E-10	0.57	0.89	4.5	2.3
E-11	0.43	0.89	4.5	1.7
E-14	0.83	0.89	4.0	2.9
E-15	0.54	0.89	4.1	2.0
E-21	0.50	0.84	3.3	1.4
E-22	1.22	0.89	4.2	4.5
E-23	0.48	0.89	3.9	1.7
E-28	0.21	0.89	4.8	0.9
E-32	4.30	0.83	2.7	9.6
E-33	1.26	0.82	2.4	2.5
E-34	0.86	0.85	3.4	2.4
E-35	1.77	0.83	2.7	4.0
E-36	1.17	0.84	2.8	2.8
E-37	0.85	0.83	3.3	2.4
E-38	1.06	0.89	4.3	4.1
E-39	0.81	0.89	5.1	3.7
E-40	0.58	0.89	4.9	2.5
E-41	0.39	0.84	3.2	1.0
E-42	3.14	0.83	2.5	6.6
TOTAL	23.69			

REGISTERED PROFESSIONAL ENGINEER — ROBERT D. DENTINO — No. 45629 — Exp. 12/31/12 — CIVIL — STATE OF CALIFORNIA

REVISED ENGINEER OF WORK AS OF 04-23-2012

ROBERT D. DENTINO — DATE 05-02-12

R.C.E. No. 45629 — EXPIRES 12-31-12

Don't Dig...Until You Call U.S.A. Toll Free 1-800-227-2600 for the location of buried utility lines. Don't disrupt vital services. TWO WORKING DAYS BEFORE YOU DIG

BUILDING AND SAFETY

REVIEWED FOR COMPLIANCE WITH TITLE 24 DISABLED ACCESS AND ACCESSIBILITY ONLY

APPROVED BY: _____ NAME _____ DATE 10/11

Client:
Universal Health Services, Inc
367 South Gulph Road
King of Prussia, PA 19406
T 610 768 3300

Architect of Record:
HMC Architects
1010 Second Ave, Studio 810,
West Tower
San Diego, CA 92101
T 619 744 4077

Civil Engineer:
URS
1950 Stemmons Freeway,
Suite 6000
Dallas, Texas 75207
(214) 741-7777
(214) 741-9413 Fax

Design/Build Partners:
Turner Construction Company
DPR Construction Inc.

Temecula Valley Hospital
Temecula, CA.

Agency Approval

REVIEWED IN ACCORDANCE WITH THE REQUIREMENTS OF TS4, CCR APPROVED

Office of Statewide Health Planning & Development Facilities Development Division

OSHPD NO.

HMC Project No. 2308006

PLANS ISSUED FOR REVIEW ONLY

REVISION

LD12-061GR
LD10-019GR

CONSTRUCTION RECORD	DATE	BY	REVISIONS	ACC'D	DATE	BENCH MARK	SCALE	SEAL:	Designed By	Drawn By	Checked By
Contractor			1. REVISE DRIVEWAY & TOTAL NUMBER OF SHEETS AND ADD NEW E.O.M. DELETE HELIPAD	RD	5/11/11	BM=C59.5 STAMPED ON 3 & 1/2" BRASS DISK K=62 1927 LOCATED 2.0 MILES SOUTHEAST ON TEMECULA PARKWAY FROM MAIN STREET, 1.8 MILES SOUTH ON RAINBOW CANYON ROAD.	HORIZONTAL	REGISTERED PROFESSIONAL ENGINEER — MARGIE MARIE DE LAURELL — No. C 59448 — EXP. 12/31/11 — CIVIL — STATE OF CALIFORNIA — 5-9-11	SEL	MDL	
Inspector									Plans Prepared Under Supervision Of		
Date Completed						ELEVATION: 1302.491' DATE: 9-01-82	VERTICAL		MARGIE MARIE DE LAURELL R.C.E. NO. C59448	DATE 8/31/11	

RECOMMENDED BY: _____ DATE: 9/8/11

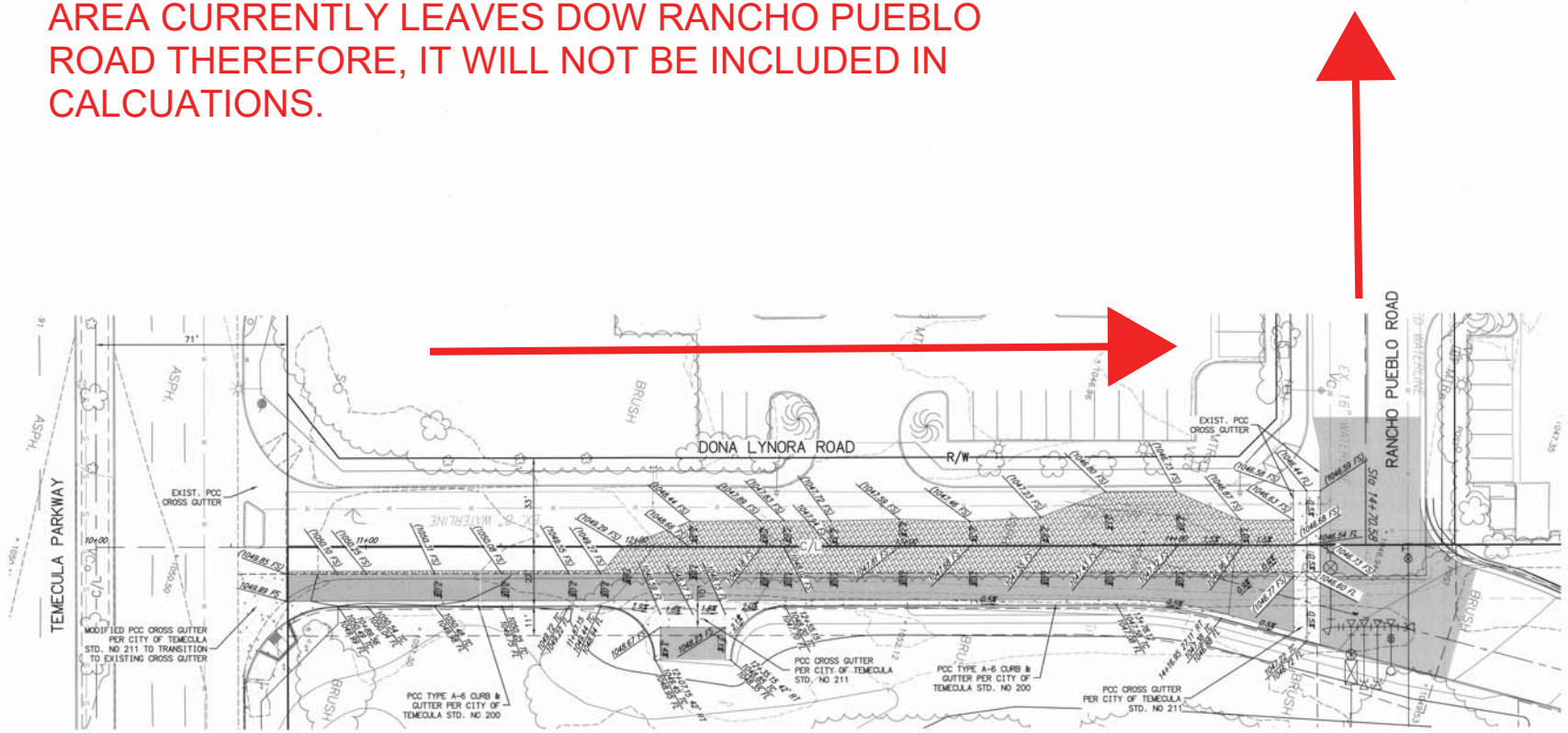
ACCEPTED BY: _____ DATE: 9/9/11
GREG BUTLER
DIRECTOR OF PUBLIC WORKS/CITY ENGINEER
R.C.E. NO. 47109

CITY OF TEMECULA DEPARTMENT OF PUBLIC WORKS

TEMECULA VALLEY HOSPITAL
PHASE 1 DRAINAGE AREA MAP
PM 32468/PA10-0194

Drawing No.
PG-25
Sheet 25 OF 32

OFFSITE:
AREA CURRENTLY LEAVES DOW RANCHO PUEBLO ROAD THEREFORE, IT WILL NOT BE INCLUDED IN CALCUATIONS.



SEE SHEET SIP-8 FOR ADDITIONAL NOTES AND DETAILS

SCALE: 1"=20'

Don't Dig...Until You Call U.S.A. Toll Free 1-800-227-2600 for the location of buried utility lines. Don't disrupt vital services. TWO WORKING DAYS BEFORE YOU DIG

CONSTRUCTION RECORD	DATE	BY	REVISIONS	ACC'D	DATE	BENCH MARK	SCALE
Contractor			⚠1 ADD THIS SHEET		1/8/13	BM-CSK83 STAMPED ON 3 & 1/2" BRASS DISK K-82 1927 LOCATED 2.0 MILES SOUTHEAST ON TEMECULA PKWY FROM MAIN STREET, 1.8 MILES SOUTH ON RAINBOW CANYON ROAD. ELEVATION: 1302.491' DATE: 9-01-82	HORIZONTAL
Inspector							VERTICAL
Date Completed							

Designed By	Drawn By	Checked By
IF	IF	RDD

Plans Prepared Under Supervision Of
ROBERT D. DENTINO
R.C.E. NO. 45629
DATE 5/25/12

RECOMMENDED BY: [signature] DATE: 1/8/13
GREG BUTLER
DIRECTOR OF PUBLIC WORKS/CITY ENGINEER
R.C.E. NO. 47109
ACCEPTED BY: [signature] DATE: 5/24/13

CITY OF TEMECULA DEPARTMENT OF PUBLIC WORKS

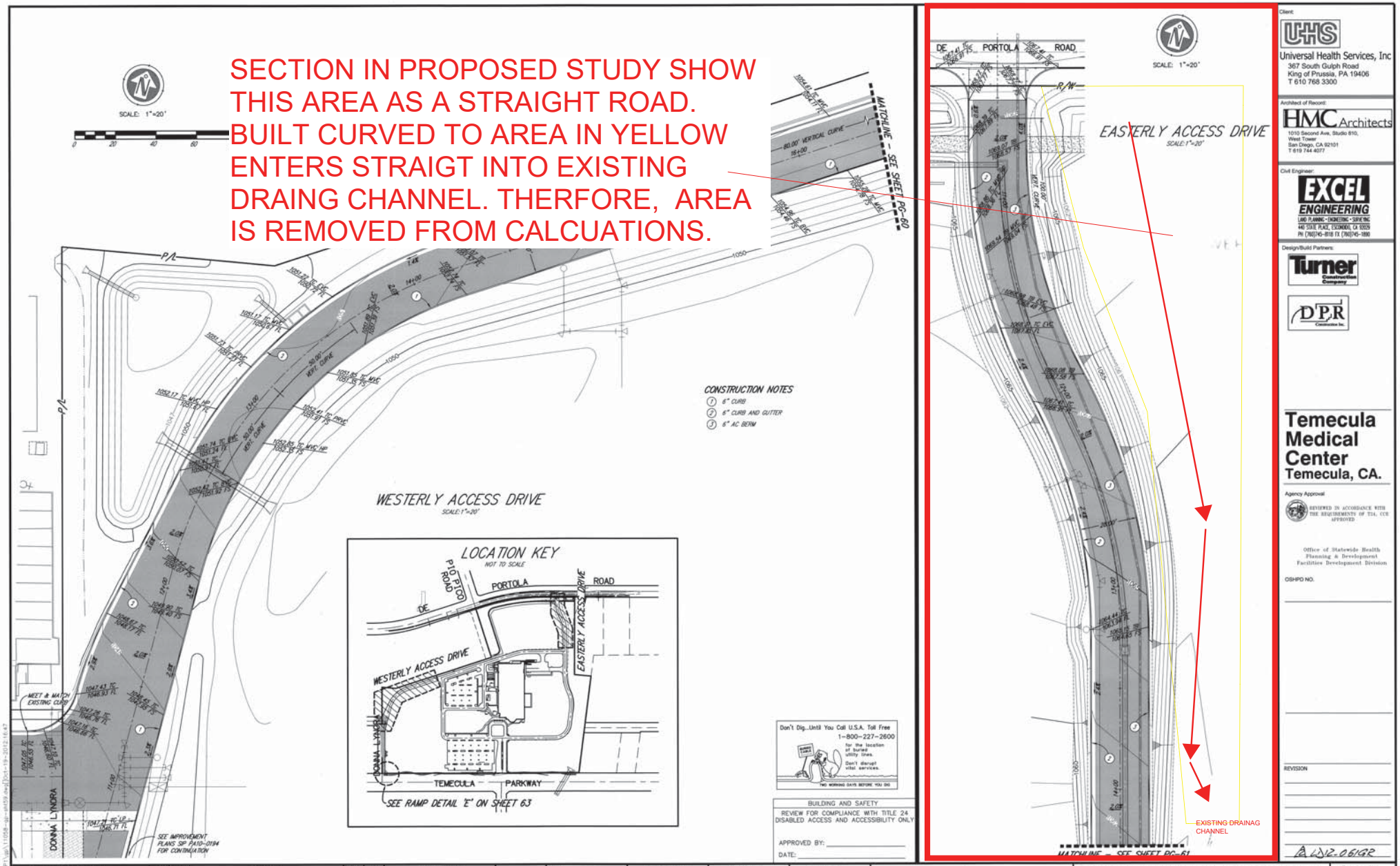
TEMECULA VALLEY HOSPITAL PAVING PLAN DONA LYNORA ROAD

⚠1 LD12-084CO LD10-062CO

Drawing No. SIP-26

Sheet 26 of 28

SECTION IN PROPOSED STUDY SHOW THIS AREA AS A STRAIGHT ROAD. BUILT CURVED TO AREA IN YELLOW ENTERS STRAIGT INTO EXISTING DRAING CHANNEL. THERFORE, AREA IS REMOVED FROM CALCUATIONS.



Client:
Universal Health Services, Inc
367 South Gulph Road
King of Prussia, PA 19406
T 610 768 3300

Architect of Record:
HMC Architects
1010 Second Ave, Studio 810,
West Tower
San Diego, CA 92101
T 619 744 4077

Civil Engineer:
EXCEL ENGINEERING
LAND PLANNING · ENGINEERING · SURVEYING
440 STATE PLACE, ESCONDIDO, CA 92029
PH (760)745-8118 FX (760)745-1890

Design/Build Partners:
Turner Construction Company
DPR Construction Inc.

Temecula Medical Center
Temecula, CA.

Agency Approval
REVIEWED IN ACCORDANCE WITH THE REQUIREMENTS OF T24, CCR APPROVED
Office of Statewide Health Planning & Development Facilities Development Division
OSHPO NO.

REVISION

P-UNI-061GR

CONSTRUCTION RECORD	DATE	BY	REVISIONS	ACC'D	DATE	BENCH MARK	SCALE	SEAL:	Designed By	Drawn By	Checked By
Contractor			ADD THIS SHEET	cb	9/8/12	BM-CSRS5 STAMPED ON 3 & 1/2" BRASS DISK K-62 1927 LOCATED 2.0 MILES SOUTHEAST ON TEMECULA PARKWAY FROM MAIN STREET, 1.8 MILES SOUTH ON RAINBOW CANYON ROAD.	HORIZONTAL		MK	MDL
Inspector						ELEVATION: 1302.491' DATUM: NGVD29	VERTICAL		Plans Prepared Under Supervision Of		
Date Completed									ROBERT D. DENTINO R.C.E. NO. 45629	DATE 10/08/12	

RECOMMENDED BY: _____ DATE: 1/8/13
ACCEPTED BY: _____ DATE: 1/9/13
GREG BUTLER
DIRECTOR OF PUBLIC WORKS/CITY ENGINEER
R.C.E. NO. 47109

CITY OF TEMECULA DEPARTMENT OF PUBLIC WORKS

TEMECULA VALLEY HOSPITAL
REVISED PRECISE GRADING

Drawing No. PG-59
Sheet 59 OF 64

ATTACHMENT 1
FIGURES & TABLES FROM THE RIVERSIDE COUNTY HYDROLOGY MANUAL

ACTUAL IMPERVIOUS COVER

Land Use (1)	Range-Percent	Recommended Value For Average Conditions-Percent(2)
Natural or Agriculture	0 - 10	0
Single Family Residential: (3)		
40,000 S. F. (1 Acre) Lots	10 - 25	20
20,000 S. F. (½ Acre) Lots	30 - 45	40
7,200 - 10,000 S. F. Lots	45 - 55	50
Multiple Family Residential:		
Condominiums	45 - 70	65
Apartments	65 - 90	80
Mobile Home Park	60 - 85	75
Commercial, Downtown Business or Industrial	80 -100	90

Notes:

1. Land use should be based on ultimate development of the watershed. Long range master plans for the County and incorporated cities should be reviewed to insure reasonable land use assumptions.

2. Recommended values are based on average conditions which may not apply to a particular study area. The percentage impervious may vary greatly even on comparable sized lots due to differences in dwelling size, improvements, etc. Landscape practices should also be considered as it is common in some areas to use ornamental gravels underlain by impervious plastic materials in place of lawns and shrubs. A field investigation of a study area should always be made, and a review of aerial photos, where available may assist in estimating the percentage of impervious cover in developed areas.

3. For typical horse ranch subdivisions increase impervious area 5 percent over the values recommended in the table above.

RCFC & WCD
HYDROLOGY MANUAL

IMPERVIOUS COVER FOR DEVELOPED AREAS

Table A-1 Average Manning Roughness Coefficients for Pavement and Gutters[1]

Concrete Gutter[2]	0.015
Concrete Pavement	
Float Finish	0.014
Broom Finish	0.016
Concrete Gutter with Asphalt Pavement	
Smooth Finish	0.013
Rough Texture	0.015
Asphalt Pavement	
Smooth Finish	0.013
Rough Texture	0.016

Based on FHWA HEC-22.

N-VALUES USED IN HYDROLOGY

[1] Based on materials and workmanship required by standard specifications.
[2] Increase roughness coefficient in gutters with mild slopes where sediment might accumulate by 0.020.

Table A-2 Average Manning Roughness Coefficients for Closed Conduits[3]

Reinforced Concrete Pipe (RCP)	0.013
Corrugated Metal Pipe and Pipe Arch	
2-3/8 x 1/2 inch Corrugations	
Unlined	0.024
Half Lined	
Full Flow	0.018
d/D>=0.60	0.016
d/D<0.60	0.013
Fully Lined	0.013
3 x 1 inch Corrugations	0.027
6 x 2 inch Corrugations	0.032
Spiral Rib Pipe	0.013
Helically Wound Pipe	
18-inch	0.015
24-inch	0.017
30-inch	0.019
36-inch	0.021
42-inch	0.022
48-inch	0.023
Plastic Pipe (HPDE and PVC)	
Smooth	0.013
Corrugated	0.024
Vitrified Clay Pipe	0.014
Cast-Iron Pipe (Uncoated)	0.013
Steel Pipe	0.011
Brick	0.017
Cast-In-Place Concrete Pipe	
Rough Wood Forms	0.017
Smooth Wood or Steel Forms	0.014

N-VALUES USED IN HYDROLOGY

[3] Based on materials and workmanship required by standard specifications.

Table A-3

Table A-3 Average Manning Roughness Coefficients for Small Open Channels Conveying Less than 50 cfs[4]

	Design Flow Depth		
Lining Type	**0 – 0.5 ft**	**0.5 – 2.0 ft**	**> 2.0 ft**
Concrete (Poured)	0.015	0.013	0.013
Air Blown Concrete	0.023	0.019	0.016
Grouted Riprap	0.040	0.030	0.028
Stone Masonry	0.042	0.032	0.030
Soil Cement	0.025	0.022	0.020
Bare Soil	0.023	0.020	0.020
Rock Cut	0.045	0.035	0.025
Rock Riprap	Based on Rock Size (See Section 5.7.2)		

Table A-4

Table A-4 Average Manning Roughness Coefficients for Larger Open Channels

Unlined Channels	
Clay Loam	0.023
Sand	0.020
Lined Channels	
Grass Lined (Well-Maintained)	0.035
Grass Lined (Not Maintained)	0.045
Wetland-Bottom Channels (New Channel)	0.023
Wetland-Bottom Channels (Mature Channel)	See Table A-5
Riprap-Lined Channels	See Section 5.7.2
Concrete (Poured)	0.014
Air Blown Mortar (Gunite or Shotcrete)[5]	0.016
Asphaltic Concrete or Bituminous Plant Mix	0.018

For channels with revetments or multiple lining types, use composite Manning roughness coefficient based on component lining materials.

N-VALUES USED IN HYDROLOGY

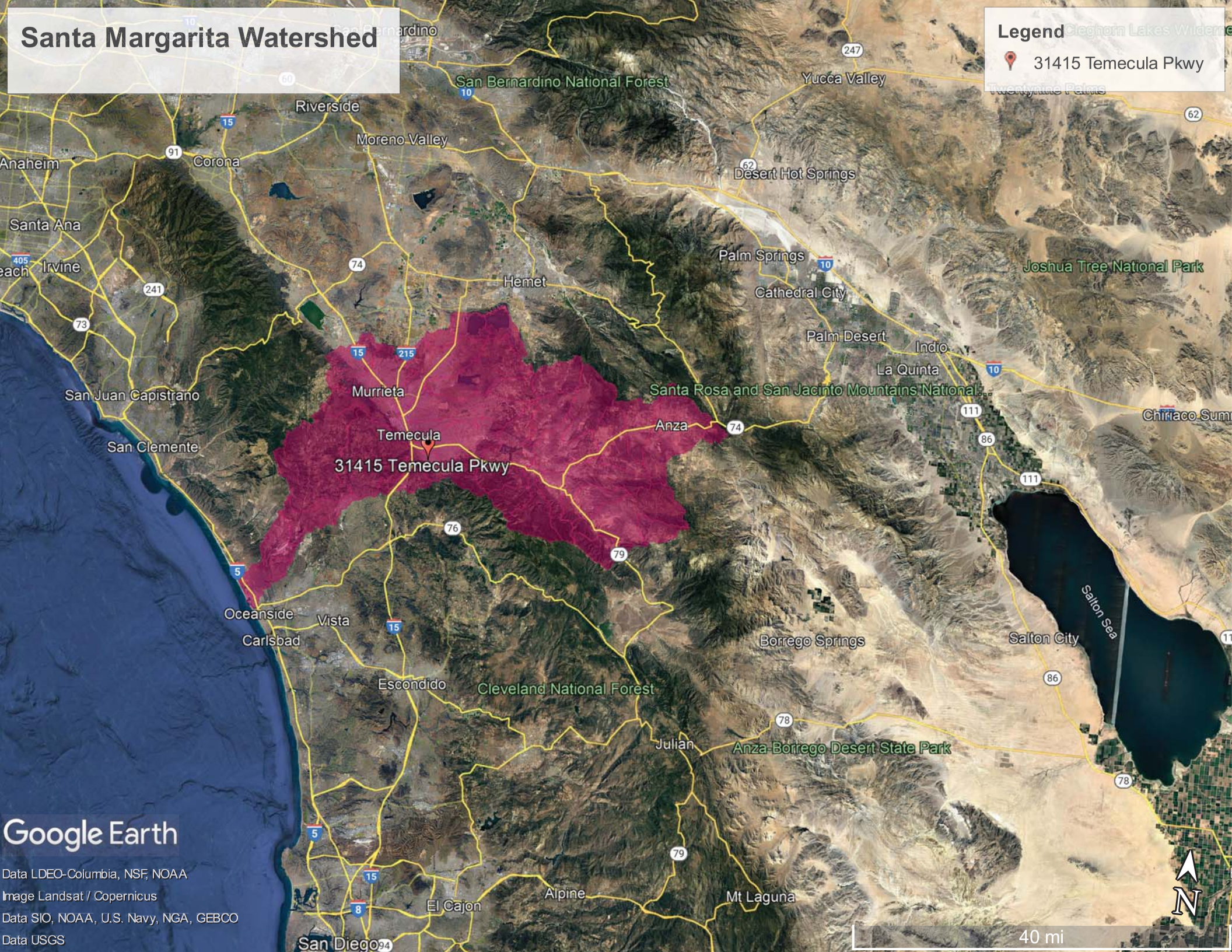
[4] Based on materials and workmanship required by standard specifications.
[5] For air-blown concrete, use n=0.012 (if troweled) and n=0.025 if purposely roughened.

Table A-5 Average Manning Roughness Coefficients for Natural Channels

Minor Streams (Surface Width at Flood Stage < 100 ft)	
Fairly Regular Section	
(A) Some Grass and Weeds, Little or No Brush	0.030
(B) Dense Growth of Weeds, Depth of Flow Materially Greater Than Weed Height	0.040
(C) Some Weeds, Light Brush on Banks	0.040
(D) Some Weeds, Heavy Brush on Banks	0.060
(E) For Trees within Channel with Branches Submerged at High Stage, Increase All Above Values By	0.015
Irregular Section, with Pools, Slight Channel Meander	
Channels (A) to (E) Above, Increase All Values By	0.015
Mountain Streams; No Vegetation in Channel, Banks Usually Steep, Trees and Brush along Banks Submerged at High Stage	
(A) Bottom, Gravel, Cobbles and Few Boulders	0.050
(B) Bottom, Cobbles with Large Boulders	0.060
Flood Plains (Adjacent To Natural Streams)	
Pasture, No Brush	
(A) Short Grass	0.030
(B) High Grass	0.040
Cultivated Areas	
(A) No Crop	0.040
(B) Mature Row Crops	0.040
(C) Mature Field Crops	0.050
Heavy Weeds, Scattered Brush	0.050
Light Brush and Trees	0.060
Medium To Dense Brush	0.090
Dense Willows	0.170
Cleared Land with Tree Stumps, 100-150 Per Acre	0.060
Heavy Stand of Timber, Little Undergrowth	
(A) Flood Depth below Branches	0.110
(B) Flood Depth Reaches Branches	0.140

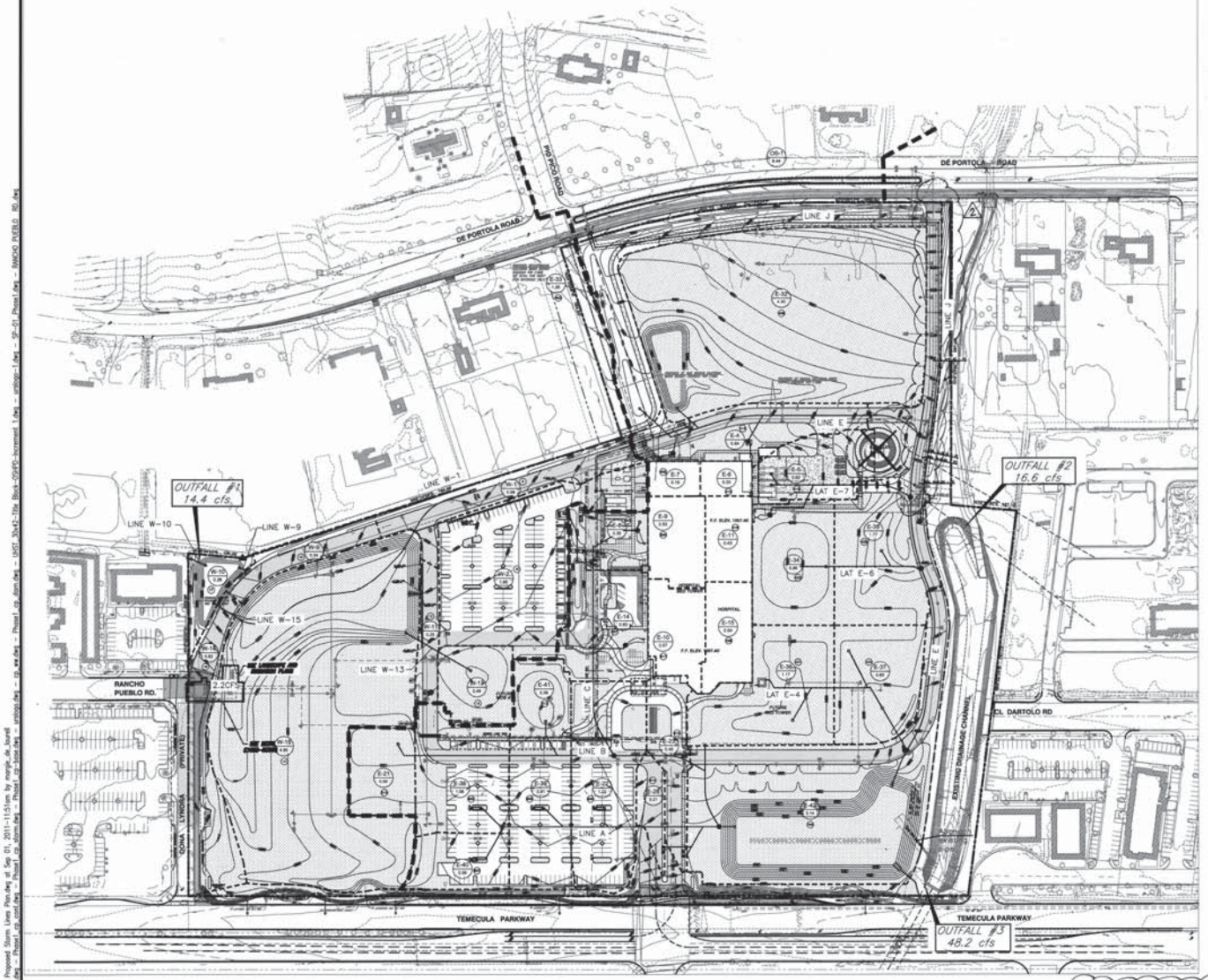
N-VALUES USED IN HYDROLOGY

ATTACHMENT 2
WATERSHED MAP


Santa Margarita Watershed
Legend
31415 Temecula Pkwy
San Bernardino National Forest
Riverside
Moreno Valley
Corona
Anaheim
Santa Ana
Irvine
Yucca Valley
Desert Hot Springs
Palm Springs
Cathedral City
Joshua Tree National Park
Hemet
Palm Desert
Indio
La Quinta
Santa Rosa and San Jacinto Mountains National...
Murrieta
Temecula
31415 Temecula Pkwy
Anza
San Juan Capistrano
San Clemente
Oceanside
Vista
Carlsbad
Escondido
Cleveland National Forest
Borrego Springs
Salton City
Salton Sea
Julian
Anza-Borrego Desert State Park
Alpine
El Cajon
Mt Laguna
San Diego
Google Earth
Data LDEO-Columbia, NSF, NOAA
Image Landsat / Copernicus
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Data USGS
N
40 mi

ATTACHMENT 3
PRE-DEVELOPMENT CONDITION EXHIBIT

PRE-DEVELOPMENT EXHIBIT



LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- DRAINAGE AREA DIVIDES
- EAST/WEST DRAINAGE AREAS BOUNDARY
- A1 / 10.33 — DRAINAGE AREA / ACREAGE
- OUTFALL #1 — OUTFALL NUMBER

LEGEND

- PROPOSED STORM PIPE
- DRAINAGE BOUNDARY LINE
- PROPOSED INLET STRUCTURE
- DETENTION BASIN STAND PIPE
- PROPOSED HEADWALL
- PROPOSED LANDSCAPED AREA
- TO BE CONSTRUCTED WITH STREET IMPROVEMENT PLANS.
- 130 — NODE #

100 50 0 100 200

OUTFALL #2 - OFFSITE

DRAINAGE AREA	AREA (ACRES)	C	Tcon (in/hr)	Q100 (cfs)
OS-1	8.44	0.83	4.6	16.6

OUTFALL #1 - WEST

DRAINAGE AREA	AREA (ACRES)	C	Tcon (in/hr)	Q100 (cfs)
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RUNOFF TO RANCHO PUEBLO RD

DRAINAGE AREA	AREA (ACRES)	C	Tcon (in/hr)	Q100 (cfs)
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OUTFALL #3 - EAST

DRAINAGE AREA	AREA (ACRES)	C	Tcon (in/hr)	Q100 (cfs)
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E-6	0.20	0.89	5.1	0.9
E-7	0.15	0.89	5.1	0.7
E-8	0.38	0.89	4.5	1.5
E-9	0.53	0.89	4.7	2.2
E-10	0.57	0.89	4.5	2.3
E-11	0.43	0.89	4.5	1.7
E-14	0.83	0.89	4.0	2.9
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TOTAL	23.69			

REGISTERED PROFESSIONAL ENGINEER — ROBERT D. DENTINO — No. 45629 — Exp. 12/31/12 — CIVIL — STATE OF CALIFORNIA

REVISED ENGINEER OF WORK AS OF 04-23-2012

ROBERT D. DENTINO — DATE 05-02-12

R.C.E. No. 45629 — EXPIRES 12-31-12

Don't Dig...Until You Call U.S.A. Toll Free 1-800-227-2600 for the location of buried utility lines. Don't disrupt vital services. TWO WORKING DAYS BEFORE YOU DIG

BUILDING AND SAFETY

REVIEWED FOR COMPLIANCE WITH TITLE 24 DISABLED ACCESS AND ACCESSIBILITY ONLY

APPROVED BY: _____ NAME _____ DATE 4/7/11

CONSTRUCTION RECORD	DATE	BY	REVISIONS	ACC'D	DATE	BENCH MARK	SCALE
Contractor			1. REVISE DRIVEWAY & TOTAL NUMBER OF SHEETS AND ADD NEW E.O.M. DELETE HELIPAD	RD	4/7/11	BM=CS953 STAMPED ON 3 & 1/2" BRASS DISK K=62.1927 LOCATED 2.0 MILES SOUTHEAST ON TEMECULA PARKWAY FROM MAIN STREET, 1.8 MILES SOUTH ON RAINBOW CANYON ROAD. ELEVATION: 1302.491' DATE: 9-01-82	HORIZONTAL
Inspector							VERTICAL
Date Completed							

SEAL: REGISTERED PROFESSIONAL ENGINEER — MARGIE MARIE DE LAURELL — No. C-59448 — EXP. 12/31/11 — CIVIL — STATE OF CALIFORNIA — 5-9-11

Designed By	Drawn By	Checked By
SEL		MDL

Plans Prepared Under Supervision Of

MARGIE MARIE DE LAURELL — DATE 8/31/11

R.C.E. NO. C59448

RECOMMENDED BY: _____ DATE: 9/8/11

ACCEPTED BY: _____ DATE: 9/9/11

GREG BUTLER
DIRECTOR OF PUBLIC WORKS/CITY ENGINEER
R.C.E. NO. 47109

CITY OF TEMECULA DEPARTMENT OF PUBLIC WORKS

TEMECULA VALLEY HOSPITAL
PHASE 1 DRAINAGE AREA MAP
PM 32468/PA10-0194

Drawing No. **PG-25**

Sheet 25 OF 32

Client:
UHS
Universal Health Services, Inc
367 South Gulph Road
King of Prussia, PA 19406
T 610 768 3300

Architect of Record:
HMC Architects
1010 Second Ave, Studio 810,
West Tower
San Diego, CA 92101
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Civil Engineer:
URS
1950 Stemmons Freeway,
Suite 6000
Dallas, Texas 75207
(214) 741-7777
(214) 741-9413 Fax

Design/Build Partners:
Turner Construction Company
DPR Construction Inc.

Temecula Valley Hospital
Temecula, CA.

Agency Approval

REVIEWED IN ACCORDANCE WITH THE REQUIREMENTS OF TS4, CCR APPROVED

Office of Statewide Health Planning & Development Facilities Development Division

OSHPD NO.

HMC Project No. 2308006

PLANS ISSUED FOR REVIEW ONLY

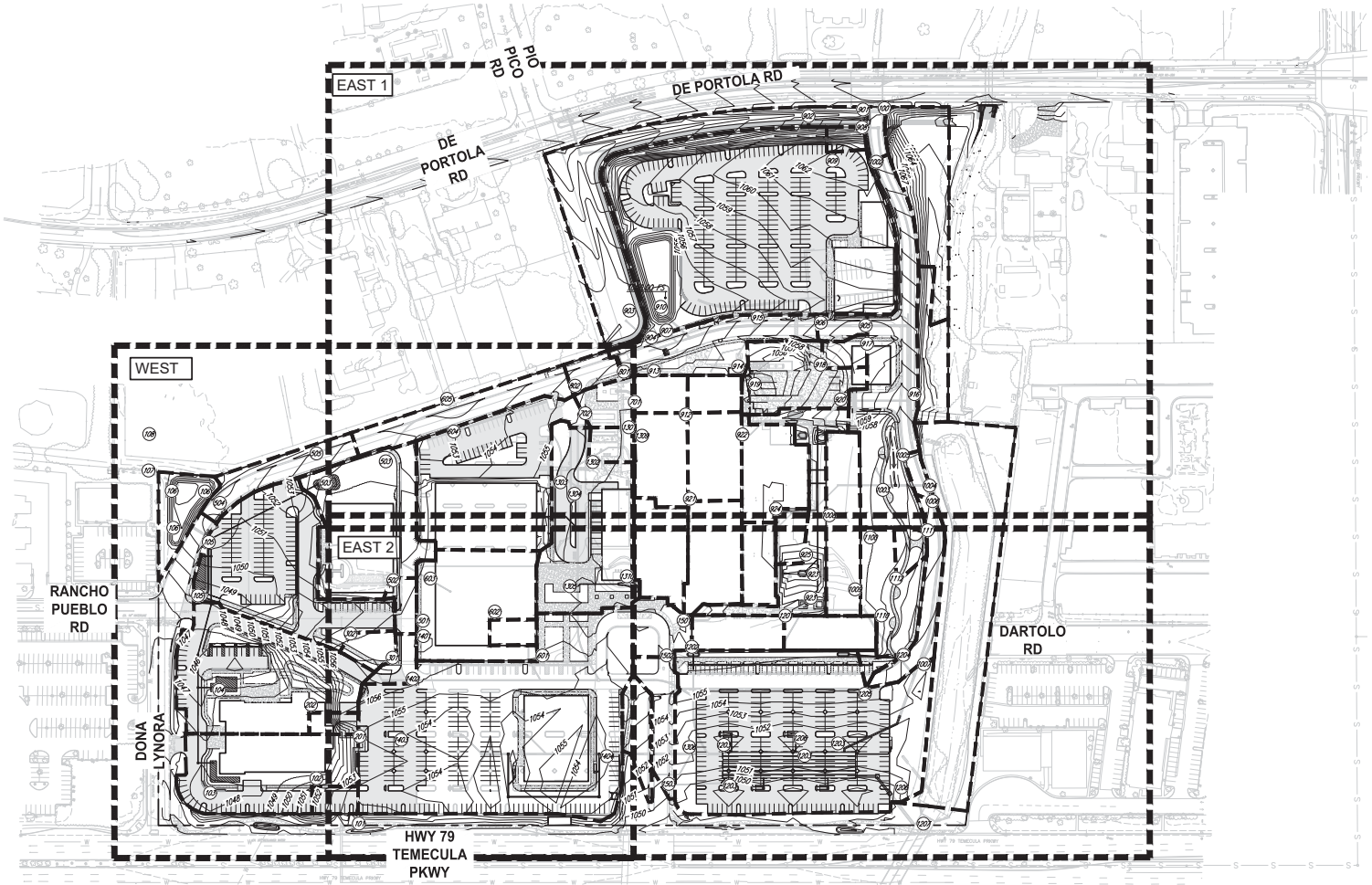
REVISION

4 LD12-061GR
LD10-019GR

Drawing: K:\DWG\2051\42.00 - Temecula\Drawings\Phase1 - Proposed Storm Lines Plan.dwg at Sep 01, 2011-11:51am by morgie_de_laurell
XREFs: 30X42-Title Block-ORIGINAL.dwg - Phase1_ca_storm.dwg - ca_xref.dwg - Phase1_us_storm.dwg - usbpp.dwg - usbpp-1.dwg - usbpp-2.dwg - SP-01_Phase1.dwg - RANCHO PUEBLO_RD..dwg

ATTACHMENT 4
POST-DEVELOPMENT CONDITION EXHIBIT

POST-DEVELOPMENT EXHIBIT



KEYMAP

SCALE: 1"=100'

0 100 200 300 400

LEGEND

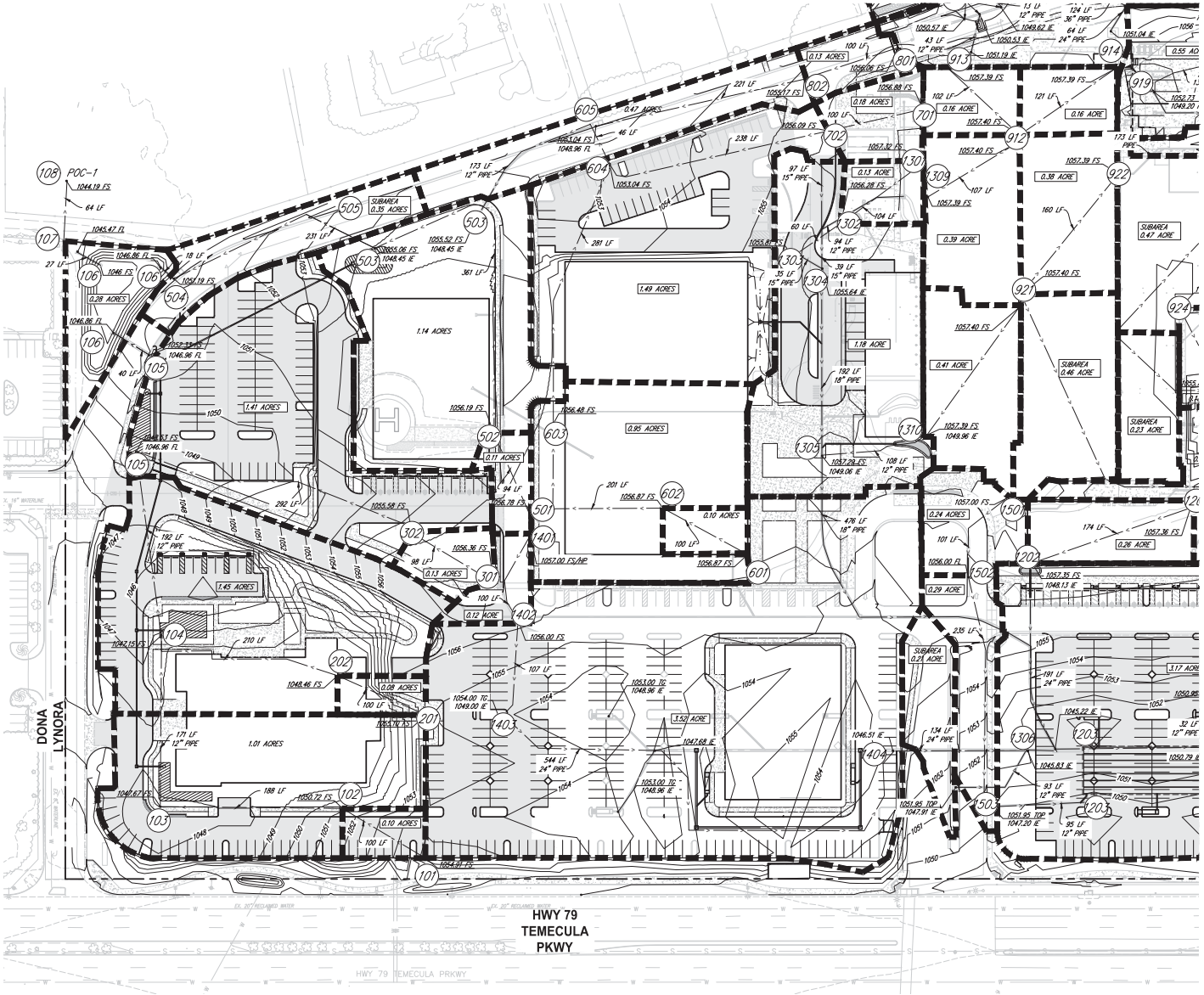
101 NODE NUMBER

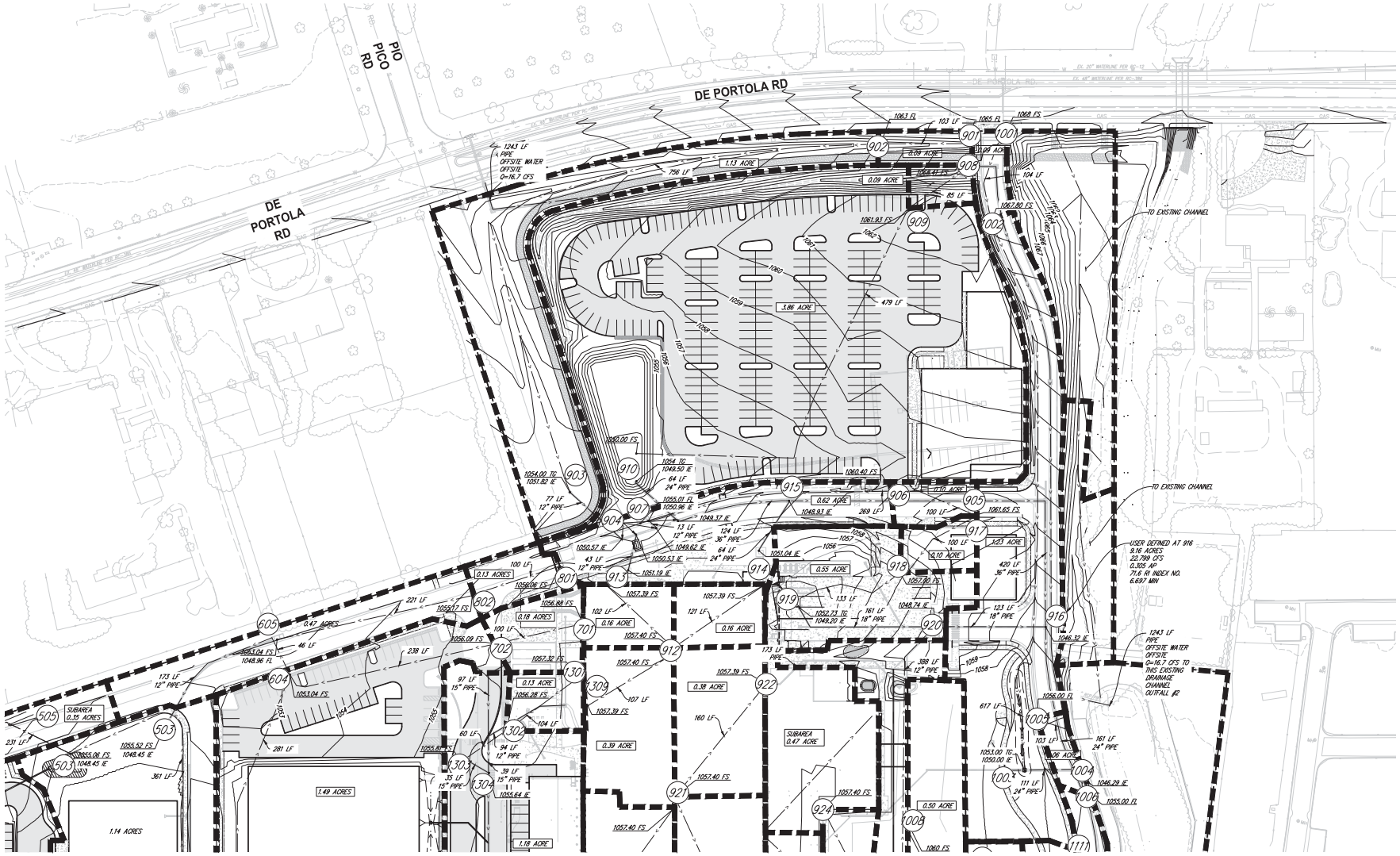
SURFACE FLOW

PIPE FLOW

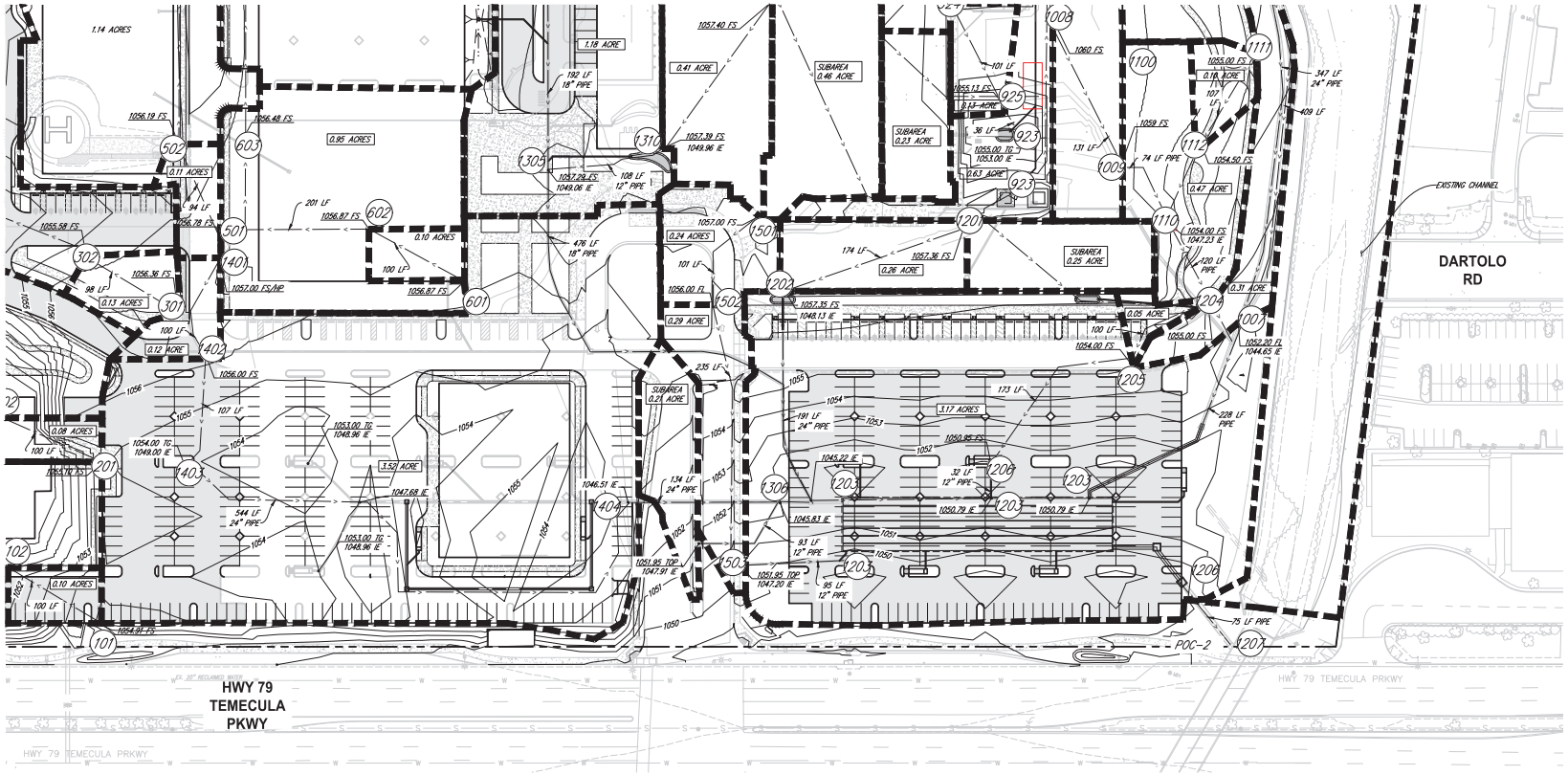
XXX ELEVATION

POST HYDROLOGY EXHIBIT


HWY 79
TEMECULA
PKWY
DONA
LYNORA
HWY 79 TEMECULA PRKWY
POC-1
1.49 ACRES
1.14 ACRES
1.41 ACRES
0.95 ACRES
1.45 ACRES
1.01 ACRES
3.52 ACRE
1.18 ACRE
SUBAREA 0.35 ACRES
SUBAREA 0.47 ACRE
SUBAREA 0.46 ACRE
SUBAREA 0.23 ACRE
SUBAREA 0.21 ACRE
544 LF 24" PIPE
LEGEND
NODE NUMBER
SURFACE FLOW
PIPE FLOW
XXX
ELEVATION
SCALE: 1"=50'
0
50
200
200
250
POST
HYDROLOGY
EXHIBIT
WEST



POST HYDROLOGY EXHIBIT EAST 1



LEGEND

- (101) NODE NUMBER
- —> SURFACE FLOW
- —> PIPE FLOW
- XXX ELEVATION

SCALE: 1"=50'

0 50 200 200 250

POST HYDROLOGY EXHIBIT EAST 2

ATTACHMENT 5
RATIONAL METHOD RUNOFF CALCULAITONS

5a. CIVILD PRE-DEVELOPMENT CALCULATIONS

PRE-DEVELOPMENT

Q100 PHASE 1 (APPROVED) CIVIL D

EAST-Q100 SEE APPROVED REPORT FOR Q10 & Q100

PRE-DEVELOPMENT

Q100 PHASE 1 (APPROVED) CIVIL D USER-DEFINED NODE 438-702

```
                Riverside County Rational Hydrology Program

     CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989 - 1999 Version
6.0
          Rational Hydrology Study        Date: 12/14/10
File:LineE100.out
     ------------------------------------------------------------------
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      *********  Hydrology Study Control Information **********

      English (in-lb) Units used in input data file

     ------------------------------------------------------------------
------
      FOR OFFICIAL USE ONLY - CALTRANS San Bernardino - S/N 661
     ------------------------------------------------------------------
------
      Rational Method Hydrology Program based on
      Riverside County Flood Control & Water Conservation District
      1978 hydrology manual

      Storm event (year) =  100.00 Antecedent Moisture Condition = 2

      Standard intensity-duration curves data (Plate D-4.1)
      For the [ Murrieta,Tmc,Rnch CaNorco ] area used.
      10 year storm 10 minute intensity =  2.360(In/Hr)
      10 year storm 60 minute intensity =  0.880(In/Hr)
      100 year storm 10 minute intensity =  3.480(In/Hr)
      100 year storm 60 minute intensity =  1.300(In/Hr)

      Storm event year = 100.0
      Calculated rainfall intensity data:
      1 hour intensity =  1.300(In/Hr)
      Slope of intensity duration curve = 0.5500


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++++
      Process from Point/Station      400.000 to Point/Station
401.000
      **** INITIAL AREA EVALUATION ****
     ------------------------------------------------------------------
____
      Initial area flow distance =   105.000(Ft.)
      Top (of initial area) elevation =  1058.000(Ft.)
      Bottom (of initial area) elevation =  1057.000(Ft.)
      Difference in elevation =     1.000(Ft.)
      Slope =    0.00952  s(percent)=       0.95
      TC = k(0.300)*[(length^3)/(elevation change)]^0.2
      Warning: TC computed to be less than 5 min.; program is assuming
the
      time of concentration is 5 minutes.
      Initial area time of concentration =    5.000 min.
      Rainfall intensity =      5.099(In/Hr) for a   100.0 year storm
      COMMERCIAL subarea type
      Runoff Coefficient = 0.891
      Decimal fraction soil group A = 0.000
```

```
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 2)  =  69.00
      Pervious area fraction =  0.100; Impervious fraction =  0.900
      Initial subarea runoff =      0.681(CFS)
      Total initial stream area =        0.150(Ac.)
      Pervious area fraction = 0.100

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      Process from Point/Station      401.000 to Point/Station
402.000
      **** PIPEFLOW TRAVEL TIME (User specified size) ****
      ------------------------------------------------------------------------
----
      Upstream point/station elevation =  1052.900(Ft.)
      Downstream point/station elevation =  1050.610(Ft.)
      Pipe length  =    36.00(Ft.)   Manning's N = 0.013
      No. of pipes = 1  Required pipe flow  =     0.681(CFS)
      Given pipe size =     12.00(In.)
      Calculated individual pipe flow  =     0.681(CFS)
      Normal flow depth in pipe =    2.23(In.)
      Flow top width inside pipe =    9.34(In.)
      Critical Depth =    4.13(In.)
      Pipe flow velocity =      6.74(Ft/s)
      Travel time through pipe =    0.09 min.
      Time of concentration (TC) =     5.09 min.

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      Process from Point/Station      402.000 to Point/Station
405.000
      **** PIPEFLOW TRAVEL TIME (User specified size) ****
      ------------------------------------------------------------------------
----
      Upstream point/station elevation =  1050.110(Ft.)
      Downstream point/station elevation =  1050.000(Ft.)
      Pipe length  =    20.00(Ft.)   Manning's N = 0.013
      No. of pipes = 1  Required pipe flow  =     0.681(CFS)
      Given pipe size =     12.00(In.)
      Calculated individual pipe flow  =     0.681(CFS)
      Normal flow depth in pipe =    4.15(In.)
      Flow top width inside pipe =   11.42(In.)
      Critical Depth =    4.13(In.)
      Pipe flow velocity =      2.82(Ft/s)
      Travel time through pipe =    0.12 min.
      Time of concentration (TC) =     5.21 min.

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      Process from Point/Station      402.000 to Point/Station
405.000
      **** CONFLUENCE OF MINOR STREAMS ****
      ------------------------------------------------------------------------
----
      Along Main Stream number: 1 in normal stream number 1
      Stream flow area =      0.150(Ac.)
```

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      Runoff from this stream =      0.681(CFS)
      Time of concentration =    5.21 min.
      Rainfall intensity =     4.986(In/Hr)
      Summary of stream data:

      Stream   Flow rate      TC            Rainfall Intensity
       No.       (CFS)       (min)                 (In/Hr)


      1        0.681      5.21                  4.986
      Largest stream flow has longer time of concentration
      Qp =      0.681 + sum of
      Qp =      0.681

      Total of 1 streams to confluence:
      Flow rates before confluence point:
            0.681
      Area of streams before confluence:
            0.150
      Results of confluence:
      Total flow rate =      0.681(CFS)
      Time of concentration =     5.207 min.
      Effective stream area after confluence =      0.150(Ac.)


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      Process from Point/Station      403.000 to Point/Station
404.000
      **** INITIAL AREA EVALUATION ****
      ------------------------------------------------------------------------
----
      Initial area flow distance =   980.000(Ft.)
      Top (of initial area) elevation =  1066.700(Ft.)
      Bottom (of initial area) elevation =  1055.000(Ft.)
      Difference in elevation =    11.700(Ft.)
      Slope =    0.01194  s(percent)=       1.19
      TC = k(0.530)*[(length^3)/(elevation change)]^0.2
      Initial area time of concentration =   20.201 min.
      Rainfall intensity =      2.366(In/Hr) for a   100.0 year storm
      UNDEVELOPED (poor cover) subarea
      Runoff Coefficient = 0.824
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 2)  =  86.00
      Pervious area fraction =  1.000; Impervious fraction =  0.000
      Initial subarea runoff =      2.457(CFS)
      Total initial stream area =        1.260(Ac.)
      Pervious area fraction = 1.000


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      Process from Point/Station      404.000 to Point/Station
405.000
      **** PIPEFLOW TRAVEL TIME (Program estimated size) ****
      ------------------------------------------------------------------------
----
      Upstream point/station elevation =  1052.000(Ft.)
```

```
      Runoff from this stream =      0.681(CFS)
      Time of concentration =    5.21 min.
      Rainfall intensity =     4.986(In/Hr)
      Summary of stream data:

      Stream   Flow rate      TC            Rainfall Intensity
       No.       (CFS)       (min)                 (In/Hr)


      1        0.681      5.21                  4.986
      Largest stream flow has longer time of concentration
      Qp =      0.681 + sum of
      Qp =      0.681

      Total of 1 streams to confluence:
      Flow rates before confluence point:
            0.681
      Area of streams before confluence:
            0.150
      Results of confluence:
      Total flow rate =      0.681(CFS)
      Time of concentration =     5.207 min.
      Effective stream area after confluence =      0.150(Ac.)


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      Process from Point/Station      403.000 to Point/Station
404.000
      **** INITIAL AREA EVALUATION ****
      ------------------------------------------------------------------------
----
      Initial area flow distance =   980.000(Ft.)
      Top (of initial area) elevation =  1066.700(Ft.)
      Bottom (of initial area) elevation =  1055.000(Ft.)
      Difference in elevation =    11.700(Ft.)
      Slope =    0.01194  s(percent)=       1.19
      TC = k(0.530)*[(length^3)/(elevation change)]^0.2
      Initial area time of concentration =   20.201 min.
      Rainfall intensity =      2.366(In/Hr) for a   100.0 year storm
      UNDEVELOPED (poor cover) subarea
      Runoff Coefficient = 0.824
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 2)  =  86.00
      Pervious area fraction =  1.000; Impervious fraction =  0.000
      Initial subarea runoff =      2.457(CFS)
      Total initial stream area =        1.260(Ac.)
      Pervious area fraction = 1.000


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      Process from Point/Station      404.000 to Point/Station
405.000
      **** PIPEFLOW TRAVEL TIME (Program estimated size) ****
      ------------------------------------------------------------------------
----
      Upstream point/station elevation =  1052.000(Ft.)
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      Nearest computed pipe diameter  =     12.00(In.)
      Calculated individual pipe flow  =     2.779(CFS)
      Normal flow depth in pipe =    7.38(In.)
      Flow top width inside pipe =   11.68(In.)
      Critical Depth =    8.58(In.)
      Pipe flow velocity =      5.48(Ft/s)
      Travel time through pipe =    0.12 min.
      Time of concentration (TC) =    20.52 min.


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      Process from Point/Station      405.000 to Point/Station
408.000
      **** CONFLUENCE OF MINOR STREAMS ****
      ------------------------------------------------------------------------
----
      Along Main Stream number: 1 in normal stream number 1
      Stream flow area =      1.410(Ac.)
      Runoff from this stream =      2.779(CFS)
      Time of concentration =   20.52 min.
      Rainfall intensity =     2.345(In/Hr)
      Summary of stream data:

      Stream   Flow rate      TC            Rainfall Intensity
       No.       (CFS)       (min)                 (In/Hr)


      1        2.779     20.52                  2.345
      Largest stream flow has longer time of concentration
      Qp =      2.779 + sum of
      Qp =      2.779

      Total of 1 streams to confluence:
      Flow rates before confluence point:
            2.779
      Area of streams before confluence:
            1.410
      Results of confluence:
      Total flow rate =      2.779(CFS)
      Time of concentration =    20.523 min.
      Effective stream area after confluence =      1.410(Ac.)


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      Process from Point/Station      406.000 to Point/Station
407.000
      **** INITIAL AREA EVALUATION ****
      ------------------------------------------------------------------------
----
      Initial area flow distance =   370.000(Ft.)
      Top (of initial area) elevation =  1059.000(Ft.)
      Bottom (of initial area) elevation =  1055.000(Ft.)
      Difference in elevation =     4.000(Ft.)
      Slope =    0.01081  s(percent)=       1.08
      TC = k(0.300)*[(length^3)/(elevation change)]^0.2
      Initial area time of concentration =    7.900 min.
      Rainfall intensity =      3.965(In/Hr) for a   100.0 year storm
      COMMERCIAL subarea type
      Runoff Coefficient = 0.888
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```
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 2)  =  69.00
      Pervious area fraction =  0.100; Impervious fraction =  0.900
      Initial subarea runoff =      2.958(CFS)
      Total initial stream area =        0.840(Ac.)
      Pervious area fraction = 0.100

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      Process from Point/Station      407.000 to Point/Station
408.000
      **** PIPEFLOW TRAVEL TIME (User specified size) ****
      ------------------------------------------------------------------------
----
      Upstream point/station elevation =  1050.500(Ft.)
      Downstream point/station elevation =  1049.910(Ft.)
      Pipe length  =    15.00(Ft.)   Manning's N = 0.013
      No. of pipes = 1  Required pipe flow  =     2.958(CFS)
      Given pipe size =     12.00(In.)
      Calculated individual pipe flow  =     2.958(CFS)
      Normal flow depth in pipe =    5.41(In.)
      Flow top width inside pipe =   11.94(In.)
      Critical Depth =    8.84(In.)
      Pipe flow velocity =      8.60(Ft/s)
      Travel time through pipe =    0.03 min.
      Time of concentration (TC) =     7.93 min.

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      Process from Point/Station      407.000 to Point/Station
408.000
      **** CONFLUENCE OF MINOR STREAMS ****
      ------------------------------------------------------------------------
----
      Along Main Stream number: 1 in normal stream number 2
      Stream flow area =      0.840(Ac.)
      Runoff from this stream =      2.958(CFS)
      Time of concentration =    7.93 min.
      Rainfall intensity =     3.957(In/Hr)
      Summary of stream data:

      Stream   Flow rate      TC            Rainfall Intensity
       No.       (CFS)       (min)                 (In/Hr)


      1        2.779     20.52                 2.345
      2        2.958      7.93                 3.957
      Largest stream flow has longer or shorter time of concentration
      Qp =      2.958 + sum of
              Qa          Tb/Ta
               2.779 *    0.386 =      1.074
      Qp =      4.032

      Total of 2 streams to confluence:
      Flow rates before confluence point:
             2.779       2.958
```

```
      Nearest computed pipe diameter  =     12.00(In.)
      Calculated individual pipe flow  =     2.779(CFS)
      Normal flow depth in pipe =    7.38(In.)
      Flow top width inside pipe =   11.68(In.)
      Critical Depth =    8.58(In.)
      Pipe flow velocity =      5.48(Ft/s)
      Travel time through pipe =    0.12 min.
      Time of concentration (TC) =    20.52 min.


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      Process from Point/Station      405.000 to Point/Station
408.000
      **** CONFLUENCE OF MINOR STREAMS ****
      ------------------------------------------------------------------------
-----
      Along Main Stream number: 1 in normal stream number 1
      Stream flow area =      1.410(Ac.)
      Runoff from this stream =      2.779(CFS)
      Time of concentration =   20.52 min.
      Rainfall intensity =     2.345(In/Hr)
      Summary of stream data:

      Stream   Flow rate      TC            Rainfall Intensity
       No.       (CFS)       (min)                 (In/Hr)


      1        2.779     20.52                  2.345
      Largest stream flow has longer time of concentration
      Qp =      2.779 + sum of
      Qp =      2.779

      Total of 1 streams to confluence:
      Flow rates before confluence point:
            2.779
      Area of streams before confluence:
            1.410
      Results of confluence:
      Total flow rate =      2.779(CFS)
      Time of concentration =    20.523 min.
      Effective stream area after confluence =      1.410(Ac.)


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++++
      Process from Point/Station      406.000 to Point/Station
407.000
      **** INITIAL AREA EVALUATION ****
      ------------------------------------------------------------------------
-----
      Initial area flow distance =   370.000(Ft.)
      Top (of initial area) elevation =  1059.000(Ft.)
      Bottom (of initial area) elevation =  1055.000(Ft.)
      Difference in elevation =     4.000(Ft.)
      Slope =    0.01081  s(percent)=       1.08
      TC = k(0.300)*[(length^3)/(elevation change)]^0.2
      Initial area time of concentration =    7.900 min.
      Rainfall intensity =      3.965(In/Hr) for a   100.0 year storm
      COMMERCIAL subarea type
      Runoff Coefficient = 0.888
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      Process from Point/Station      409.000 to Point/Station
410.000
      **** INITIAL AREA EVALUATION ****
      ------------------------------------------------------------------------
----
      Initial area flow distance =   785.000(Ft.)
      Top (of initial area) elevation =  1066.500(Ft.)
      Bottom (of initial area) elevation =  1048.000(Ft.)
      Difference in elevation =    18.500(Ft.)
      Slope =    0.02357  s(percent)=       2.36
      TC = k(0.530)*[(length^3)/(elevation change)]^0.2
      Initial area time of concentration =   16.135 min.
      Rainfall intensity =      2.677(In/Hr) for a   100.0 year storm
      UNDEVELOPED (poor cover) subarea
      Runoff Coefficient = 0.833
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 2)  =  86.00
      Pervious area fraction =  1.000; Impervious fraction =  0.000
      Initial subarea runoff =      9.583(CFS)
      Total initial stream area =        4.300(Ac.)
      Pervious area fraction = 1.000


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      Process from Point/Station      410.000 to Point/Station
411.000
      **** PIPEFLOW TRAVEL TIME (Program estimated size) ****
      ------------------------------------------------------------------------
----
      Upstream point/station elevation =  1052.000(Ft.)
      Downstream point/station elevation =  1049.350(Ft.)
      Pipe length  =    56.00(Ft.)   Manning's N = 0.013
      No. of pipes = 1  Required pipe flow  =     9.583(CFS)
      Nearest computed pipe diameter  =     15.00(In.)
      Calculated individual pipe flow  =     9.583(CFS)
      Normal flow depth in pipe =    9.09(In.)
      Flow top width inside pipe =   14.66(In.)
      Critical Depth =   14.07(In.)
      Pipe flow velocity =     12.32(Ft/s)
      Travel time through pipe =    0.08 min.
      Time of concentration (TC) =    16.21 min.


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      Process from Point/Station      410.000 to Point/Station
411.000
      **** CONFLUENCE OF MINOR STREAMS ****
      ------------------------------------------------------------------------
----
      Along Main Stream number: 1 in normal stream number 2
      Stream flow area =      4.300(Ac.)
      Runoff from this stream =      9.583(CFS)
```

```
      Area of streams before confluence:
            1.410        0.840
      Results of confluence:
      Total flow rate =       4.032(CFS)
      Time of concentration =      7.929 min.
      Effective stream area after confluence =       2.250(Ac.)


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++++
      Process from Point/Station      408.000 to Point/Station
411.000
      **** PIPEFLOW TRAVEL TIME (Program estimated size) ****
      ------------------------------------------------------------------------
----
      Upstream point/station elevation =  1049.500(Ft.)
      Downstream point/station elevation =  1048.850(Ft.)
      Pipe length  =    15.00(Ft.)   Manning's N = 0.013
      No. of pipes = 1  Required pipe flow  =     4.032(CFS)
      Nearest computed pipe diameter  =    12.00(In.)
      Calculated individual pipe flow  =     4.032(CFS)
      Normal flow depth in pipe =    6.30(In.)
      Flow top width inside pipe =   11.98(In.)
      Critical Depth =   10.20(In.)
      Pipe flow velocity =      9.64(Ft/s)
      Travel time through pipe =    0.03 min.
      Time of concentration (TC) =     7.96 min.


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++++
      Process from Point/Station      408.000 to Point/Station
411.000
      **** CONFLUENCE OF MINOR STREAMS ****
      ------------------------------------------------------------------------
----
      Along Main Stream number: 1 in normal stream number 1
      Stream flow area =      2.250(Ac.)
      Runoff from this stream =      4.032(CFS)
      Time of concentration =    7.96 min.
      Rainfall intensity =     3.950(In/Hr)
      Summary of stream data:

      Stream   Flow rate      TC            Rainfall Intensity
       No.       (CFS)       (min)                 (In/Hr)


      1        4.032      7.96                  3.950
      Largest stream flow has longer time of concentration
      Qp =      4.032 + sum of
      Qp =      4.032

      Total of 1 streams to confluence:
      Flow rates before confluence point:
            4.032
      Area of streams before confluence:
            2.250
      Results of confluence:
      Total flow rate =       4.032(CFS)
      Time of concentration =     7.955 min.
      Effective stream area after confluence =       2.250(Ac.)
```

```
Time of concentration =   16.21 min.
Rainfall intensity =     2.670(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                (In/Hr)


1        4.032      7.96                  3.950
2        9.583     16.21                  2.670
Largest stream flow has longer time of concentration
Qp =      9.583 + sum of
        Qb          Ia/Ib
         4.032 *    0.676 =      2.726
Qp =     12.309

Total of 2 streams to confluence:
Flow rates before confluence point:
       4.032       9.583
Area of streams before confluence:
        2.250        4.300
Results of confluence:
Total flow rate =     12.309(CFS)
Time of concentration =    16.211 min.
Effective stream area after confluence =      6.550(Ac.)


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Process from Point/Station      411.000 to Point/Station
414.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
----
Upstream point/station elevation =  1048.850(Ft.)
Downstream point/station elevation =  1048.360(Ft.)
Pipe length  =   135.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    12.309(CFS)
Nearest computed pipe diameter  =     24.00(In.)
Calculated individual pipe flow  =    12.309(CFS)
Normal flow depth in pipe =   17.86(In.)
Flow top width inside pipe =   20.94(In.)
Critical Depth =   15.13(In.)
Pipe flow velocity =      4.91(Ft/s)
Travel time through pipe =    0.46 min.
Time of concentration (TC) =    16.67 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
Process from Point/Station      411.000 to Point/Station
414.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
----
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      6.550(Ac.)
Runoff from this stream =     12.309(CFS)
Time of concentration =   16.67 min.
Rainfall intensity =     2.630(In/Hr)
Summary of stream data:
```

```
      Stream   Flow rate      TC            Rainfall Intensity
       No.       (CFS)       (min)                 (In/Hr)


      1       12.309     16.67                2.630
      Largest stream flow has longer time of concentration
      Qp =     12.309 + sum of
      Qp =     12.309

      Total of 1 streams to confluence:
      Flow rates before confluence point:
            12.309
      Area of streams before confluence:
             6.550
      Results of confluence:
      Total flow rate =     12.309(CFS)
      Time of concentration =    16.669 min.
      Effective stream area after confluence =      6.550(Ac.)


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station      412.000 to Point/Station
413.000
      **** INITIAL AREA EVALUATION ****
      ------------------------------------------------------------------------
----
      Initial area flow distance =   110.000(Ft.)
      Top (of initial area) elevation =  1058.000(Ft.)
      Bottom (of initial area) elevation =  1057.000(Ft.)
      Difference in elevation =     1.000(Ft.)
      Slope =    0.00909  s(percent)=       0.91
      TC = k(0.300)*[(length^3)/(elevation change)]^0.2
      Initial area time of concentration =    5.035 min.
      Rainfall intensity =      5.080(In/Hr) for a   100.0 year storm
      COMMERCIAL subarea type
      Runoff Coefficient = 0.891
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 2)  =  69.00
      Pervious area fraction =  0.100; Impervious fraction =  0.900
      Initial subarea runoff =      0.905(CFS)
      Total initial stream area =        0.200(Ac.)
      Pervious area fraction = 0.100


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station      413.000 to Point/Station
414.000
      **** PIPEFLOW TRAVEL TIME (User specified size) ****
      ------------------------------------------------------------------------
----
      Upstream point/station elevation =  1052.900(Ft.)
      Downstream point/station elevation =  1048.360(Ft.)
      Pipe length  =   100.00(Ft.)   Manning's N = 0.013
      No. of pipes = 1  Required pipe flow  =     0.905(CFS)
      Given pipe size =     12.00(In.)
```

```
      Calculated individual pipe flow  =     0.905(CFS)
      Normal flow depth in pipe =    2.80(In.)
      Flow top width inside pipe =   10.15(In.)
      Critical Depth =    4.78(In.)
      Pipe flow velocity =      6.50(Ft/s)
      Travel time through pipe =    0.26 min.
      Time of concentration (TC) =     5.29 min.


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station      413.000 to Point/Station
414.000
      **** CONFLUENCE OF MINOR STREAMS ****
      ------------------------------------------------------------------------
----
      Along Main Stream number: 1 in normal stream number 2
      Stream flow area =      0.200(Ac.)
      Runoff from this stream =      0.905(CFS)
      Time of concentration =    5.29 min.
      Rainfall intensity =     4.943(In/Hr)
      Summary of stream data:

      Stream   Flow rate      TC            Rainfall Intensity
       No.       (CFS)       (min)                 (In/Hr)


      1       12.309     16.67                  2.630
      2        0.905      5.29                  4.943
      Largest stream flow has longer time of concentration
      Qp =     12.309 + sum of
              Qb          Ia/Ib
               0.905 *    0.532 =      0.481
      Qp =     12.790

      Total of 2 streams to confluence:
      Flow rates before confluence point:
            12.309       0.905
      Area of streams before confluence:
             6.550        0.200
      Results of confluence:
      Total flow rate =     12.790(CFS)
      Time of concentration =    16.669 min.
      Effective stream area after confluence =      6.750(Ac.)


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station      414.000 to Point/Station
415.000
      **** PIPEFLOW TRAVEL TIME (Program estimated size) ****
      ------------------------------------------------------------------------
----
      Upstream point/station elevation =  1048.360(Ft.)
      Downstream point/station elevation =  1047.350(Ft.)
      Pipe length  =   280.00(Ft.)   Manning's N = 0.013
      No. of pipes = 1  Required pipe flow  =    12.790(CFS)
      Nearest computed pipe diameter  =     24.00(In.)
      Calculated individual pipe flow  =    12.790(CFS)
      Normal flow depth in pipe =   18.52(In.)
      Flow top width inside pipe =   20.15(In.)
```

```
      Critical Depth =    15.43(In.)
      Pipe flow velocity =      4.92(Ft/s)
      Travel time through pipe =     0.95 min.
      Time of concentration (TC) =     17.62 min.


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      Process from Point/Station      415.000 to Point/Station
421.000
      **** PIPEFLOW TRAVEL TIME (Program estimated size) ****
      ------------------------------------------------------------------------
----
      Upstream point/station elevation =  1047.350(Ft.)
      Downstream point/station elevation =  1046.840(Ft.)
      Pipe length  =   125.00(Ft.)   Manning's N = 0.013
      No. of pipes = 1  Required pipe flow  =    12.790(CFS)
      Nearest computed pipe diameter  =     24.00(In.)
      Calculated individual pipe flow  =    12.790(CFS)
      Normal flow depth in pipe =   17.55(In.)
      Flow top width inside pipe =   21.27(In.)
      Critical Depth =   15.43(In.)
      Pipe flow velocity =      5.19(Ft/s)
      Travel time through pipe =     0.40 min.
      Time of concentration (TC) =     18.02 min.


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++++
      Process from Point/Station      415.000 to Point/Station
421.000
      **** CONFLUENCE OF MAIN STREAMS ****
      ------------------------------------------------------------------------
----
      The following data inside Main Stream is listed:
      In Main Stream number: 1
      Stream flow area =      6.750(Ac.)
      Runoff from this stream =     12.790(CFS)
      Time of concentration =   18.02 min.
      Rainfall intensity =     2.519(In/Hr)
      Summary of stream data:

      Stream   Flow rate      TC            Rainfall Intensity
       No.       (CFS)       (min)                 (In/Hr)


      1       12.790     18.02               2.519
      Largest stream flow has longer time of concentration
      Qp =     12.790 + sum of
      Qp =     12.790

      Total of 1 main streams to confluence:
      Flow rates before confluence point:
           12.790
      Area of streams before confluence:
           6.750


      Results of confluence:
      Total flow rate =     12.790(CFS)
      Time of concentration =    18.019 min.
```

```
      Effective stream area after confluence  =      6.750(Ac.)

      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station      419.000 to Point/Station
420.000
      **** INITIAL AREA EVALUATION ****
      ------------------------------------------------------------------------
----
      Initial area flow distance =   220.000(Ft.)
      Top (of initial area) elevation =  1060.000(Ft.)
      Bottom (of initial area) elevation =  1055.000(Ft.)
      Difference in elevation =      5.000(Ft.)
      Slope =    0.02273  s(percent)=       2.27
      TC = k(0.300)*[(length^3)/(elevation change)]^0.2
      Initial area time of concentration =     5.531 min.
      Rainfall intensity =      4.824(In/Hr) for a   100.0 year storm
      COMMERCIAL subarea type
      Runoff Coefficient = 0.890
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 2)  =  69.00
      Pervious area fraction =  0.100; Impervious fraction =  0.900
      Initial subarea runoff =      2.662(CFS)
      Total initial stream area =       0.620(Ac.)
      Pervious area fraction = 0.100

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++++
      Process from Point/Station      420.000 to Point/Station
418.000
      **** PIPEFLOW TRAVEL TIME (User specified size) ****
      ------------------------------------------------------------------------
----
      Upstream point/station elevation =  1051.150(Ft.)
      Downstream point/station elevation =  1050.000(Ft.)
      Pipe length  =    95.00(Ft.)   Manning's N = 0.013
      No. of pipes = 1  Required pipe flow  =     2.662(CFS)
      Given pipe size =     12.00(In.)
      Calculated individual pipe flow  =     2.662(CFS)
      Normal flow depth in pipe =    7.25(In.)
      Flow top width inside pipe =   11.74(In.)
      Critical Depth =    8.39(In.)
      Pipe flow velocity =      5.37(Ft/s)
      Travel time through pipe =    0.30 min.
      Time of concentration (TC) =     5.83 min.

      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station      420.000 to Point/Station
418.000
      **** CONFLUENCE OF MINOR STREAMS ****
      ------------------------------------------------------------------------
----
      Along Main Stream number: 1 in normal stream number 1
      Stream flow area =      0.620(Ac.)
```

```
Runoff from this stream =      2.662(CFS)
Time of concentration =     5.83 min.
Rainfall intensity =      4.688(In/Hr)
Summary of stream data:

Stream    Flow rate       TC              Rainfall Intensity
 No.       (CFS)        (min)                   (In/Hr)


1         2.662       5.83                    4.688
Largest stream flow has longer time of concentration
Qp =       2.662 + sum of
Qp =       2.662

Total of 1 streams to confluence:
Flow rates before confluence point:
       2.662
Area of streams before confluence:
       0.620
Results of confluence:
Total flow rate =       2.662(CFS)
Time of concentration =      5.826 min.
Effective stream area after confluence =       0.620(Ac.)


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++++
Process from Point/Station      416.000 to Point/Station
417.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
---
Initial area flow distance =   160.000(Ft.)
Top (of initial area) elevation =  1058.000(Ft.)
Bottom (of initial area) elevation =  1057.000(Ft.)
Difference in elevation =      1.000(Ft.)
Slope =     0.00625  s(percent)=        0.63
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =     6.304 min.
Rainfall intensity =       4.489(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.889
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)   =  69.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =       1.717(CFS)
Total initial stream area =         0.430(Ac.)
Pervious area fraction = 0.100


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++++
Process from Point/Station      417.000 to Point/Station
418.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
------------------------------------------------------------------------
---
Upstream point/station elevation =  1051.000(Ft.)
```

```
Downstream point/station elevation =  1050.000(Ft.)
Pipe length  =   155.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     1.717(CFS)
Given pipe size =     12.00(In.)
Calculated individual pipe flow  =     1.717(CFS)
Normal flow depth in pipe =    6.70(In.)
Flow top width inside pipe =   11.92(In.)
Critical Depth =    6.68(In.)
Pipe flow velocity =      3.81(Ft/s)
Travel time through pipe =    0.68 min.
Time of concentration (TC) =     6.98 min.


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++++
     Process from Point/Station      417.000 to Point/Station
418.000
     **** CONFLUENCE OF MINOR STREAMS ****
     ------------------------------------------------------------------------
____
     Along Main Stream number: 1 in normal stream number 2
     Stream flow area =      0.430(Ac.)
     Runoff from this stream =      1.717(CFS)
     Time of concentration =    6.98 min.
     Rainfall intensity =     4.244(In/Hr)
     Summary of stream data:

     Stream   Flow rate      TC            Rainfall Intensity
      No.       (CFS)       (min)                 (In/Hr)


     1        2.662      5.83                 4.688
     2        1.717      6.98                 4.244
     Largest stream flow has longer or shorter time of concentration
     Qp =      2.662 + sum of
             Qa           Tb/Ta
              1.717 *     0.834 =      1.432
     Qp =      4.094

     Total of 2 streams to confluence:
     Flow rates before confluence point:
           2.662       1.717
     Area of streams before confluence:
            0.620        0.430
     Results of confluence:
     Total flow rate =      4.094(CFS)
     Time of concentration =     5.826 min.
     Effective stream area after confluence =      1.050(Ac.)


     ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
     Process from Point/Station      418.000 to Point/Station
421.000
     **** PIPEFLOW TRAVEL TIME (Program estimated size) ****
     ------------------------------------------------------------------------
____
     Upstream point/station elevation =  1047.000(Ft.)
     Downstream point/station elevation =  1046.840(Ft.)
     Pipe length  =   190.00(Ft.)   Manning's N = 0.013
     No. of pipes = 1  Required pipe flow  =     4.094(CFS)
```

```
      Nearest computed pipe diameter  =     21.00(In.)
      Calculated individual pipe flow  =     4.094(CFS)
      Normal flow depth in pipe =   15.45(In.)
      Flow top width inside pipe =   18.52(In.)
      Critical Depth =    8.86(In.)
      Pipe flow velocity =      2.16(Ft/s)
      Travel time through pipe =    1.47 min.
      Time of concentration (TC) =     7.29 min.


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station      418.000 to Point/Station
421.000
      **** CONFLUENCE OF MAIN STREAMS ****
      ------------------------------------------------------------------------
----
      The following data inside Main Stream is listed:
      In Main Stream number: 2
      Stream flow area =      1.050(Ac.)
      Runoff from this stream =      4.094(CFS)
      Time of concentration =    7.29 min.
      Rainfall intensity =     4.144(In/Hr)
      Summary of stream data:

      Stream   Flow rate      TC            Rainfall Intensity
       No.       (CFS)       (min)                 (In/Hr)


      1       12.790     18.02                2.519
      2        4.094      7.29                4.144
      Largest stream flow has longer time of concentration
      Qp =     12.790 + sum of
              Qb          Ia/Ib
               4.094 *    0.608 =      2.489
      Qp =     15.279

      Total of 2 main streams to confluence:
      Flow rates before confluence point:
            12.790       4.094
      Area of streams before confluence:
              6.750        1.050


      Results of confluence:
      Total flow rate =     15.279(CFS)
      Time of concentration =    18.019 min.
      Effective stream area after confluence  =      7.800(Ac.)


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station      421.000 to Point/Station
427.000
      **** PIPEFLOW TRAVEL TIME (Program estimated size) ****
      ------------------------------------------------------------------------
----
      Upstream point/station elevation =  1046.840(Ft.)
      Downstream point/station elevation =  1045.770(Ft.)
      Pipe length  =   140.00(Ft.)   Manning's N = 0.013
      No. of pipes = 1  Required pipe flow  =    15.279(CFS)
```

```
      Nearest computed pipe diameter  =     24.00(In.)
      Calculated individual pipe flow  =    15.279(CFS)
      Normal flow depth in pipe =   15.84(In.)
      Flow top width inside pipe =   22.74(In.)
      Critical Depth =   16.89(In.)
      Pipe flow velocity =      6.95(Ft/s)
      Travel time through pipe =    0.34 min.
      Time of concentration (TC) =    18.35 min.


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station      421.000 to Point/Station
427.000
      **** CONFLUENCE OF MAIN STREAMS ****
      ------------------------------------------------------------------------
-----
      The following data inside Main Stream is listed:
      In Main Stream number: 1
      Stream flow area =      7.800(Ac.)
      Runoff from this stream =     15.279(CFS)
      Time of concentration =   18.35 min.
      Rainfall intensity =     2.494(In/Hr)
      Summary of stream data:

      Stream   Flow rate      TC            Rainfall Intensity
       No.       (CFS)       (min)                 (In/Hr)


      1       15.279     18.35                2.494
      Largest stream flow has longer time of concentration
      Qp =     15.279 + sum of
      Qp =     15.279

      Total of 1 main streams to confluence:
      Flow rates before confluence point:
           15.279
      Area of streams before confluence:
           7.800


      Results of confluence:
      Total flow rate =     15.279(CFS)
      Time of concentration =    18.354 min.
      Effective stream area after confluence  =      7.800(Ac.)


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station      422.000 to Point/Station
423.000
      **** INITIAL AREA EVALUATION ****
      ------------------------------------------------------------------------
-----
      Initial area flow distance =   150.000(Ft.)
      Top (of initial area) elevation =  1056.000(Ft.)
      Bottom (of initial area) elevation =  1055.000(Ft.)
      Difference in elevation =     1.000(Ft.)
      Slope =    0.00667  s(percent)=       0.67
      TC = k(0.530)*[(length^3)/(elevation change)]^0.2
      Initial area time of concentration =   10.713 min.
```

```
      Rainfall intensity =      3.353(In/Hr) for a   100.0 year storm
      UNDEVELOPED (poor cover) subarea
      Runoff Coefficient = 0.845
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 2)  =  86.00
      Pervious area fraction =  1.000; Impervious fraction =  0.000
      Initial subarea runoff =      2.438(CFS)
      Total initial stream area =       0.860(Ac.)
      Pervious area fraction = 1.000


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++++
      Process from Point/Station      423.000 to Point/Station
424.000
      **** PIPEFLOW TRAVEL TIME (Program estimated size) ****
      ------------------------------------------------------------------------
----
      Upstream point/station elevation =  1048.330(Ft.)
      Downstream point/station elevation =  1046.400(Ft.)
      Pipe length  =   155.00(Ft.)   Manning's N = 0.013
      No. of pipes = 1  Required pipe flow  =     2.438(CFS)
      Nearest computed pipe diameter  =     12.00(In.)
      Calculated individual pipe flow  =     2.438(CFS)
      Normal flow depth in pipe =    6.79(In.)
      Flow top width inside pipe =   11.90(In.)
      Critical Depth =    8.02(In.)
      Pipe flow velocity =      5.32(Ft/s)
      Travel time through pipe =    0.49 min.
      Time of concentration (TC) =    11.20 min.


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station      423.000 to Point/Station
424.000
      **** CONFLUENCE OF MINOR STREAMS ****
      ------------------------------------------------------------------------
----
      Along Main Stream number: 1 in normal stream number 1
      Stream flow area =      0.860(Ac.)
      Runoff from this stream =      2.438(CFS)
      Time of concentration =   11.20 min.
      Rainfall intensity =     3.272(In/Hr)
      Summary of stream data:

      Stream   Flow rate      TC            Rainfall Intensity
       No.       (CFS)       (min)                 (In/Hr)


      1        2.438     11.20                 3.272
      Largest stream flow has longer time of concentration
      Qp =      2.438 + sum of
      Qp =      2.438

      Total of 1 streams to confluence:
      Flow rates before confluence point:
             2.438
```

```
      Area of streams before confluence:
             0.860
      Results of confluence:
      Total flow rate =       2.438(CFS)
      Time of concentration =     11.199 min.
      Effective stream area after confluence =       0.860(Ac.)


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
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      Process from Point/Station      425.000 to Point/Station
426.000
      **** INITIAL AREA EVALUATION ****
      ------------------------------------------------------------------------
----
      Initial area flow distance =    670.000(Ft.)
      Top (of initial area) elevation =  1067.000(Ft.)
      Bottom (of initial area) elevation =  1054.000(Ft.)
      Difference in elevation =     13.000(Ft.)
      Slope =     0.01940  s(percent)=        1.94
      TC = k(0.530)*[(length^3)/(elevation change)]^0.2
      Initial area time of concentration =    15.745 min.
      Rainfall intensity =       2.713(In/Hr) for a   100.0 year storm
      UNDEVELOPED (poor cover) subarea
      Runoff Coefficient = 0.833
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 2)   =  86.00
      Pervious area fraction =  1.000; Impervious fraction =  0.000
      Initial subarea runoff =       4.002(CFS)
      Total initial stream area =         1.770(Ac.)
      Pervious area fraction = 1.000


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station      426.000 to Point/Station
424.000
      **** PIPEFLOW TRAVEL TIME (User specified size) ****
      ------------------------------------------------------------------------
----
      Upstream point/station elevation =  1050.000(Ft.)
      Downstream point/station elevation =  1046.400(Ft.)
      Pipe length  =    30.00(Ft.)   Manning's N = 0.013
      No. of pipes = 1  Required pipe flow  =     4.002(CFS)
      Given pipe size =     12.00(In.)
      Calculated individual pipe flow  =     4.002(CFS)
      Normal flow depth in pipe =    4.70(In.)
      Flow top width inside pipe =   11.71(In.)
      Critical Depth =   10.17(In.)
      Pipe flow velocity =     14.03(Ft/s)
      Travel time through pipe =    0.04 min.
      Time of concentration (TC) =    15.78 min.


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station      426.000 to Point/Station
424.000
```

```
      **** CONFLUENCE OF MINOR STREAMS ****
      ------------------------------------------------------------------------
____
      Along Main Stream number: 1 in normal stream number 2
      Stream flow area =      1.770(Ac.)
      Runoff from this stream =      4.002(CFS)
      Time of concentration =   15.78 min.
      Rainfall intensity =     2.710(In/Hr)
      Summary of stream data:

      Stream   Flow rate      TC            Rainfall Intensity
       No.       (CFS)       (min)                 (In/Hr)


      1        2.438     11.20                  3.272
      2        4.002     15.78                  2.710
      Largest stream flow has longer time of concentration
      Qp =      4.002 + sum of
              Qb          Ia/Ib
               2.438 *    0.828 =      2.019
      Qp =      6.021

      Total of 2 streams to confluence:
      Flow rates before confluence point:
             2.438       4.002
      Area of streams before confluence:
              0.860       1.770
      Results of confluence:
      Total flow rate =      6.021(CFS)
      Time of concentration =    15.780 min.
      Effective stream area after confluence =      2.630(Ac.)


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station      424.000 to Point/Station
427.000
      **** PIPEFLOW TRAVEL TIME (Program estimated size) ****
      ------------------------------------------------------------------------
____
      Upstream point/station elevation =  1046.000(Ft.)
      Downstream point/station elevation =  1045.770(Ft.)
      Pipe length  =    50.00(Ft.)   Manning's N = 0.013
      No. of pipes = 1  Required pipe flow  =     6.021(CFS)
      Nearest computed pipe diameter  =     18.00(In.)
      Calculated individual pipe flow  =     6.021(CFS)
      Normal flow depth in pipe =   12.69(In.)
      Flow top width inside pipe =   16.42(In.)
      Critical Depth =   11.38(In.)
      Pipe flow velocity =      4.52(Ft/s)
      Travel time through pipe =    0.18 min.
      Time of concentration (TC) =    15.96 min.


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station      424.000 to Point/Station
427.000
      **** CONFLUENCE OF MAIN STREAMS ****
      ------------------------------------------------------------------------
____
```

```
The following data inside Main Stream is listed:
In Main Stream number: 2
Stream flow area =      2.630(Ac.)
Runoff from this stream =      6.021(CFS)
Time of concentration =   15.96 min.
Rainfall intensity =     2.693(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)


1       15.279     18.35               2.494
2        6.021     15.96               2.693
Largest stream flow has longer time of concentration
Qp =     15.279 + sum of
        Qb          Ia/Ib
         6.021 *    0.926 =      5.576
Qp =     20.856

Total of 2 main streams to confluence:
Flow rates before confluence point:
      15.279       6.021
Area of streams before confluence:
        7.800        2.630


Results of confluence:
Total flow rate =     20.856(CFS)
Time of concentration =    18.354 min.
Effective stream area after confluence  =     10.430(Ac.)


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++++
     Process from Point/Station      427.000 to Point/Station
437.000
     **** PIPEFLOW TRAVEL TIME (Program estimated size) ****
     ------------------------------------------------------------------------
----
     Upstream point/station elevation =  1045.770(Ft.)
     Downstream point/station elevation =  1044.690(Ft.)
     Pipe length  =   420.00(Ft.)   Manning's N = 0.013
     No. of pipes = 1  Required pipe flow  =    20.856(CFS)
     Nearest computed pipe diameter  =     30.00(In.)
     Calculated individual pipe flow  =    20.856(CFS)
     Normal flow depth in pipe =   24.66(In.)
     Flow top width inside pipe =   22.96(In.)
     Critical Depth =   18.63(In.)
     Pipe flow velocity =      4.83(Ft/s)
     Travel time through pipe =    1.45 min.
     Time of concentration (TC) =    19.80 min.


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++++
     Process from Point/Station      427.000 to Point/Station
437.000
     **** CONFLUENCE OF MAIN STREAMS ****
     ------------------------------------------------------------------------
----
```

```
The following data inside Main Stream is listed:
In Main Stream number: 1
Stream flow area =      10.430(Ac.)
Runoff from this stream =      20.856(CFS)
Time of concentration =   19.80 min.
Rainfall intensity =     2.392(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)


1       20.856     19.80               2.392
Largest stream flow has longer time of concentration
Qp =     20.856 + sum of
Qp =     20.856

Total of 1 main streams to confluence:
Flow rates before confluence point:
      20.856
Area of streams before confluence:
       10.430


Results of confluence:
Total flow rate =      20.856(CFS)
Time of concentration =    19.804 min.
Effective stream area after confluence  =      10.430(Ac.)

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
Process from Point/Station      428.000 to Point/Station
429.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
----
Initial area flow distance =   210.000(Ft.)
Top (of initial area) elevation =  1058.000(Ft.)
Bottom (of initial area) elevation =  1057.000(Ft.)
Difference in elevation =     1.000(Ft.)
Slope =    0.00476  s(percent)=       0.48
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    7.421 min.
Rainfall intensity =      4.104(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.889
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      1.969(CFS)
Total initial stream area =        0.540(Ac.)
Pervious area fraction = 0.100

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
Process from Point/Station      429.000 to Point/Station
```

```
430.000
      **** PIPEFLOW TRAVEL TIME (User specified size) ****
      ------------------------------------------------------------------------
----
      Upstream point/station elevation =  1052.000(Ft.)
      Downstream point/station elevation =  1049.420(Ft.)
      Pipe length  =     5.00(Ft.)   Manning's N = 0.013
      No. of pipes = 1  Required pipe flow  =     1.969(CFS)
      Given pipe size =     12.00(In.)
      Calculated individual pipe flow  =     1.969(CFS)
      Normal flow depth in pipe =    2.25(In.)
      Flow top width inside pipe =    9.37(In.)
      Critical Depth =    7.18(In.)
      Pipe flow velocity =     19.29(Ft/s)
      Travel time through pipe =    0.00 min.
      Time of concentration (TC) =     7.43 min.


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station      430.000 to Point/Station
433.000
      **** PIPEFLOW TRAVEL TIME (Program estimated size) ****
      ------------------------------------------------------------------------
----
      Upstream point/station elevation =  1049.420(Ft.)
      Downstream point/station elevation =  1047.970(Ft.)
      Pipe length  =   115.00(Ft.)   Manning's N = 0.013
      No. of pipes = 1  Required pipe flow  =     1.969(CFS)
      Nearest computed pipe diameter  =     12.00(In.)
      Calculated individual pipe flow  =     1.969(CFS)
      Normal flow depth in pipe =    5.94(In.)
      Flow top width inside pipe =   12.00(In.)
      Critical Depth =    7.18(In.)
      Pipe flow velocity =      5.07(Ft/s)
      Travel time through pipe =    0.38 min.
      Time of concentration (TC) =     7.80 min.


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++++
      Process from Point/Station      430.000 to Point/Station
433.000
      **** CONFLUENCE OF MINOR STREAMS ****
      ------------------------------------------------------------------------
----
      Along Main Stream number: 1 in normal stream number 1
      Stream flow area =      0.540(Ac.)
      Runoff from this stream =      1.969(CFS)
      Time of concentration =    7.80 min.
      Rainfall intensity =     3.992(In/Hr)
      Summary of stream data:

      Stream   Flow rate      TC            Rainfall Intensity
       No.       (CFS)       (min)                 (In/Hr)


      1        1.969      7.80                  3.992
      Largest stream flow has longer time of concentration
      Qp =      1.969 + sum of
      Qp =      1.969
```

```
      Total of 1 streams to confluence:
      Flow rates before confluence point:
            1.969
      Area of streams before confluence:
             0.540
      Results of confluence:
      Total flow rate =       1.969(CFS)
      Time of concentration =      7.803 min.
      Effective stream area after confluence =       0.540(Ac.)


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      Process from Point/Station       431.000 to Point/Station
432.000
      **** INITIAL AREA EVALUATION ****
      ------------------------------------------------------------------------
____
      Initial area flow distance =    280.000(Ft.)
      Top (of initial area) elevation =  1056.000(Ft.)
      Bottom (of initial area) elevation =  1054.500(Ft.)
      Difference in elevation =      1.500(Ft.)
      Slope =     0.00536  s(percent)=        0.54
      TC = k(0.530)*[(length^3)/(elevation change)]^0.2
      Initial area time of concentration =   14.367 min.
      Rainfall intensity =       2.854(In/Hr) for a   100.0 year storm
      UNDEVELOPED (poor cover) subarea
      Runoff Coefficient = 0.836
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 2)  =  86.00
      Pervious area fraction =  1.000; Impervious fraction =  0.000
      Initial subarea runoff =       2.792(CFS)
      Total initial stream area =         1.170(Ac.)
      Pervious area fraction = 1.000


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++++
      Process from Point/Station       432.000 to Point/Station
433.000
      **** PIPEFLOW TRAVEL TIME (User specified size) ****
      ------------------------------------------------------------------------
____
      Upstream point/station elevation =  1052.000(Ft.)
      Downstream point/station elevation =  1047.970(Ft.)
      Pipe length  =    70.00(Ft.)   Manning's N = 0.013
      No. of pipes = 1  Required pipe flow  =     2.792(CFS)
      Given pipe size =     12.00(In.)
      Calculated individual pipe flow  =     2.792(CFS)
      Normal flow depth in pipe =    4.72(In.)
      Flow top width inside pipe =   11.72(In.)
      Critical Depth =    8.60(In.)
      Pipe flow velocity =       9.73(Ft/s)
      Travel time through pipe =    0.12 min.
      Time of concentration (TC) =    14.49 min.
```

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++++
 Process from Point/Station      432.000 to Point/Station
433.000
 **** CONFLUENCE OF MINOR STREAMS ****
 ------------------------------------------------------------------------
 Along Main Stream number: 1 in normal stream number 2
 Stream flow area =      1.170(Ac.)
 Runoff from this stream =      2.792(CFS)
 Time of concentration =   14.49 min.
 Rainfall intensity =     2.841(In/Hr)
 Summary of stream data:

 Stream   Flow rate      TC            Rainfall Intensity
  No.       (CFS)       (min)                 (In/Hr)


 1        1.969       7.80                  3.992
 2        2.792      14.49                  2.841
 Largest stream flow has longer time of concentration
 Qp =      2.792 + sum of
         Qb          Ia/Ib
          1.969 *     0.712 =      1.401
 Qp =      4.193

 Total of 2 streams to confluence:
 Flow rates before confluence point:
       1.969       2.792
 Area of streams before confluence:
       0.540       1.170
 Results of confluence:
 Total flow rate =      4.193(CFS)
 Time of concentration =    14.486 min.
 Effective stream area after confluence =      1.710(Ac.)


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 Process from Point/Station      433.000 to Point/Station
436.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****
 ------------------------------------------------------------------------
 Upstream point/station elevation =  1047.970(Ft.)
 Downstream point/station elevation =  1046.580(Ft.)
 Pipe length  =   110.00(Ft.)   Manning's N = 0.013
 No. of pipes = 1  Required pipe flow  =     4.193(CFS)
 Nearest computed pipe diameter  =     15.00(In.)
 Calculated individual pipe flow  =     4.193(CFS)
 Normal flow depth in pipe =    8.18(In.)
 Flow top width inside pipe =   14.94(In.)
 Critical Depth =    9.95(In.)
 Pipe flow velocity =      6.13(Ft/s)
 Travel time through pipe =    0.30 min.
 Time of concentration (TC) =    14.79 min.


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++++
 Process from Point/Station      433.000 to Point/Station
```

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436.000
      **** CONFLUENCE OF MINOR STREAMS ****
      ------------------------------------------------------------------------
----
      Along Main Stream number: 1 in normal stream number 1
      Stream flow area =      1.710(Ac.)
      Runoff from this stream =      4.193(CFS)
      Time of concentration =   14.79 min.
      Rainfall intensity =     2.809(In/Hr)
      Summary of stream data:

      Stream   Flow rate      TC            Rainfall Intensity
       No.       (CFS)       (min)                 (In/Hr)


      1        4.193     14.79                  2.809
      Largest stream flow has longer time of concentration
      Qp =      4.193 + sum of
      Qp =      4.193

      Total of 1 streams to confluence:
      Flow rates before confluence point:
            4.193
      Area of streams before confluence:
            1.710
      Results of confluence:
      Total flow rate =      4.193(CFS)
      Time of concentration =    14.785 min.
      Effective stream area after confluence =      1.710(Ac.)


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++++
      Process from Point/Station      434.000 to Point/Station
435.000
      **** INITIAL AREA EVALUATION ****
      ------------------------------------------------------------------------
----
      Initial area flow distance =   180.000(Ft.)
      Top (of initial area) elevation =  1056.000(Ft.)
      Bottom (of initial area) elevation =  1054.500(Ft.)
      Difference in elevation =     1.500(Ft.)
      Slope =    0.00833  s(percent)=       0.83
      TC = k(0.530)*[(length^3)/(elevation change)]^0.2
      Initial area time of concentration =   11.021 min.
      Rainfall intensity =      3.301(In/Hr) for a   100.0 year storm
      UNDEVELOPED (poor cover) subarea
      Runoff Coefficient = 0.844
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 2)  =  86.00
      Pervious area fraction =  1.000; Impervious fraction =  0.000
      Initial subarea runoff =      2.370(CFS)
      Total initial stream area =        0.850(Ac.)
      Pervious area fraction = 1.000


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      Process from Point/Station      435.000 to Point/Station
436.000
      **** PIPEFLOW TRAVEL TIME (User specified size) ****
      ------------------------------------------------------------------------
      Upstream point/station elevation =  1050.900(Ft.)
      Downstream point/station elevation =  1046.580(Ft.)
      Pipe length  =    80.00(Ft.)   Manning's N = 0.013
      No. of pipes = 1  Required pipe flow  =     2.370(CFS)
      Given pipe size =     12.00(In.)
      Calculated individual pipe flow  =     2.370(CFS)
      Normal flow depth in pipe =    4.39(In.)
      Flow top width inside pipe =   11.56(In.)
      Critical Depth =    7.90(In.)
      Pipe flow velocity =      9.10(Ft/s)
      Travel time through pipe =    0.15 min.
      Time of concentration (TC) =    11.17 min.


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      Process from Point/Station      435.000 to Point/Station
436.000
      **** CONFLUENCE OF MINOR STREAMS ****
      ------------------------------------------------------------------------
      Along Main Stream number: 1 in normal stream number 2
      Stream flow area =      0.850(Ac.)
      Runoff from this stream =      2.370(CFS)
      Time of concentration =   11.17 min.
      Rainfall intensity =     3.278(In/Hr)
      Summary of stream data:

      Stream   Flow rate      TC            Rainfall Intensity
       No.       (CFS)       (min)                 (In/Hr)


      1        4.193     14.79                  2.809
      2        2.370     11.17                  3.278
      Largest stream flow has longer time of concentration
      Qp =      4.193 + sum of
              Qb         Ia/Ib
               2.370 *    0.857 =      2.031
      Qp =      6.224

      Total of 2 streams to confluence:
      Flow rates before confluence point:
            4.193       2.370
      Area of streams before confluence:
             1.710        0.850
      Results of confluence:
      Total flow rate =      6.224(CFS)
      Time of concentration =    14.785 min.
      Effective stream area after confluence =      2.560(Ac.)


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++++
      Process from Point/Station      436.000 to Point/Station
437.000
      **** PIPEFLOW TRAVEL TIME (Program estimated size) ****
```

```
      Upstream point/station elevation =  1046.000(Ft.)
      Downstream point/station elevation =  1044.690(Ft.)
      Pipe length  =   150.00(Ft.)   Manning's N = 0.013
      No. of pipes = 1  Required pipe flow  =     6.224(CFS)
      Nearest computed pipe diameter  =     18.00(In.)
      Calculated individual pipe flow  =     6.224(CFS)
      Normal flow depth in pipe =   10.41(In.)
      Flow top width inside pipe =   17.78(In.)
      Critical Depth =   11.57(In.)
      Pipe flow velocity =      5.88(Ft/s)
      Travel time through pipe =    0.43 min.
      Time of concentration (TC) =    15.21 min.


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++++
      Process from Point/Station      436.000 to Point/Station
437.000
      **** CONFLUENCE OF MAIN STREAMS ****
      ----------------------------------------------------------------------
      The following data inside Main Stream is listed:
      In Main Stream number: 2
      Stream flow area =     2.560(Ac.)
      Runoff from this stream =      6.224(CFS)
      Time of concentration =   15.21 min.
      Rainfall intensity =     2.765(In/Hr)
      Summary of stream data:

      Stream   Flow rate      TC            Rainfall Intensity
       No.       (CFS)       (min)                 (In/Hr)


      1       20.856     19.80                2.392
      2        6.224     15.21                2.765
      Largest stream flow has longer time of concentration
      Qp =     20.856 + sum of
              Qb          Ia/Ib
               6.224 *    0.865 =      5.383
      Qp =     26.239

      Total of 2 main streams to confluence:
      Flow rates before confluence point:
            20.856       6.224
      Area of streams before confluence:
             10.430        2.560


      Results of confluence:
      Total flow rate =     26.239(CFS)
      Time of concentration =    19.804 min.
      Effective stream area after confluence  =     12.990(Ac.)


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++++
      Process from Point/Station      437.000 to Point/Station
438.000
      **** PIPEFLOW TRAVEL TIME (Program estimated size) ****
```

```
Upstream point/station elevation =  1044.690(Ft.)
Downstream point/station elevation =  1044.370(Ft.)
Pipe length  =    80.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    26.239(CFS)
Nearest computed pipe diameter  =     30.00(In.)
Calculated individual pipe flow  =    26.239(CFS)
Normal flow depth in pipe =   24.94(In.)
Flow top width inside pipe =   22.47(In.)
Critical Depth =   20.95(In.)
Pipe flow velocity =      6.02(Ft/s)
Travel time through pipe =    0.22 min.
Time of concentration (TC) =    20.03 min.


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++++
Process from Point/Station      437.000 to Point/Station
438.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------

Along Main Stream number: 1 in normal stream number 1
Stream flow area =     12.990(Ac.)
Runoff from this stream =     26.239(CFS)
Time of concentration =   20.03 min.
Rainfall intensity =     2.377(In/Hr)
Summary of stream data:

Stream    Flow rate      TC            Rainfall Intensity
 No.        (CFS)       (min)                 (In/Hr)


1       26.239     20.03                  2.377
Largest stream flow has longer time of concentration
Qp =     26.239 + sum of
Qp =     26.239

Total of 1 streams to confluence:
Flow rates before confluence point:
      26.239
Area of streams before confluence:
       12.990
Results of confluence:
Total flow rate =     26.239(CFS)
Time of concentration =    20.025 min.
Effective stream area after confluence =     12.990(Ac.)
End of computations, total study area =          12.990 (Ac.)
```

PRE-DEVELOPMENT

Q100 PHASE 1 (APPROVED) CIVIL D TOTAL

EAST TOTAL

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989 - 1999 Version 6.0

Rational Hydrology Study Date: 12/14/10
File:THE100NEW.out

********* Hydrology Study Control Information **********

English (in-lb) Units used in input data file

FOR OFFICIAL USE ONLY - CALTRANS San Bernardino - S/N 661

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [Murrieta,Tmc,Rnch CaNorco] area used.
10 year storm 10 minute intensity = 2.360(In/Hr)
10 year storm 60 minute intensity = 0.880(In/Hr)
100 year storm 10 minute intensity = 3.480(In/Hr)
100 year storm 60 minute intensity = 1.300(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity = 1.300(In/Hr)
Slope of intensity duration curve = 0.5500

++

Process from Point/Station 700.000 to Point/Station 701.000

**** INITIAL AREA EVALUATION ****

Initial area flow distance = 350.000(Ft.)
Top (of initial area) elevation = 1046.000(Ft.)
Bottom (of initial area) elevation = 1045.000(Ft.)
Difference in elevation = 1.000(Ft.)
Slope = 0.00286 s(percent)= 0.29
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 17.812 min.
Rainfall intensity = 2.535(In/Hr) for a 100.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.829
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000

```
      RI index for soil(AMC 2)  =  86.00
      Pervious area fraction =  1.000; Impervious fraction =  0.000
      Initial subarea runoff =      6.600(CFS)
      Total initial stream area =        3.140(Ac.)
      Pervious area fraction = 1.000


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++++
      Process from Point/Station       700.000 to Point/Station
701.000
      **** CONFLUENCE OF MINOR STREAMS ****
      ------------------------------------------------------------------------
---
      Along Main Stream number: 1 in normal stream number 1
      Stream flow area =        3.140(Ac.)
      Runoff from this stream =       6.600(CFS)
      Time of concentration =   17.81 min.
      Rainfall intensity =    2.535(In/Hr)
      Summary of stream data:

      Stream    Flow rate       TC              Rainfall Intensity
       No.        (CFS)         (min)                 (In/Hr)


      1         6.600      17.81                    2.535
      Largest stream flow has longer time of concentration
      Qp =       6.600 + sum of
      Qp =       6.600

      Total of 1 streams to confluence:
      Flow rates before confluence point:
            6.600
      Area of streams before confluence:
             3.140
      Results of confluence:
      Total flow rate =       6.600(CFS)
      Time of concentration =    17.812 min.
      Effective stream area after confluence =       3.140(Ac.)


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++++
      Process from Point/Station       438.000 to Point/Station
702.000
      **** USER DEFINED FLOW INFORMATION AT A POINT ****
      ------------------------------------------------------------------------
---
      Rainfall intensity =       2.377(In/Hr) for a   100.0 year storm
      COMMERCIAL subarea type
      Runoff Coefficient = 0.882
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 2)  =  69.00
      Pervious area fraction =  0.100; Impervious fraction =  0.900
      User specified values are as follows:
      TC =  20.02 min.  Rain intensity =       2.38(In/Hr)
      Total area =        12.99(Ac.)  Total runoff =     26.24(CFS)
```

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++++
      Process from Point/Station       438.000 to Point/Station
702.000
      **** CONFLUENCE OF MINOR STREAMS ****
      ------------------------------------------------------------------------
      Along Main Stream number: 1 in normal stream number 2
      Stream flow area =      12.990(Ac.)
      Runoff from this stream =      26.239(CFS)
      Time of concentration =   20.02 min.
      Rainfall intensity =     2.377(In/Hr)
      Summary of stream data:

      Stream    Flow rate       TC              Rainfall Intensity
       No.        (CFS)        (min)                  (In/Hr)


      1          6.600      17.81                    2.535
      2         26.239      20.02                    2.377
      Largest stream flow has longer time of concentration
      Qp =      26.239 + sum of
               Qb          Ia/Ib
                6.600 *     0.938 =       6.188
      Qp =      32.427

      Total of 2 streams to confluence:
      Flow rates before confluence point:
            6.600       26.239
      Area of streams before confluence:
            3.140       12.990
      Results of confluence:
      Total flow rate =      32.427(CFS)
      Time of concentration =     20.025 min.
      Effective stream area after confluence =      16.130(Ac.)


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++++
      Process from Point/Station       618.000 to Point/Station
702.000
      **** CONFLUENCE OF MAIN STREAMS ****
      ------------------------------------------------------------------------
      The following data inside Main Stream is listed:
      In Main Stream number: 1
      Stream flow area =      16.130(Ac.)
      Runoff from this stream =      32.427(CFS)
      Time of concentration =   20.02 min.
      Rainfall intensity =     2.377(In/Hr)
      Summary of stream data:

      Stream    Flow rate       TC              Rainfall Intensity
       No.        (CFS)        (min)                  (In/Hr)


      1        32.427      20.02                    2.377
      Largest stream flow has longer time of concentration
      Qp =      32.427 + sum of
      Qp =      32.427
```

```
      Total of 1 main streams to confluence:
      Flow rates before confluence point:
            32.427
      Area of streams before confluence:
             16.130


      Results of confluence:
      Total flow rate =      32.427(CFS)
      Time of concentration =     20.025 min.
      Effective stream area after confluence  =      16.130(Ac.)


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++++
      Process from Point/Station       618.000 to Point/Station
702.000
      **** USER DEFINED FLOW INFORMATION AT A POINT ****
      ------------------------------------------------------------------------
---
      Rainfall intensity =      3.847(In/Hr) for a    100.0 year storm
      COMMERCIAL subarea type
      Runoff Coefficient = 0.888
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 2)   =  69.00
      Pervious area fraction =  0.100; Impervious fraction =  0.900
      User specified values are as follows:
      TC =    8.35 min.  Rain intensity =       3.85(In/Hr)
      Total area =          7.56(Ac.)  Total runoff =      25.52(CFS)


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++++
      Process from Point/Station       618.000 to Point/Station
702.000
      **** CONFLUENCE OF MINOR STREAMS ****
      ------------------------------------------------------------------------
---
      Along Main Stream number: 1 in normal stream number 1
      Stream flow area =        7.560(Ac.)
      Runoff from this stream =      25.525(CFS)
      Time of concentration =     8.35 min.
      Rainfall intensity =      3.847(In/Hr)
      Summary of stream data:

      Stream    Flow rate       TC          Rainfall Intensity
       No.        (CFS)        (min)              (In/Hr)


      1        25.525        8.35                 3.847
      Largest stream flow has longer time of concentration
      Qp =      25.525 + sum of
      Qp =      25.525

      Total of 1 streams to confluence:
      Flow rates before confluence point:
            25.525
```

```
      Area of streams before confluence:
            7.560
      Results of confluence:
      Total flow rate =      25.525(CFS)
      Time of concentration =      8.345 min.
      Effective stream area after confluence =       7.560(Ac.)

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++++
      Process from Point/Station       618.000 to Point/Station
702.000
      **** CONFLUENCE OF MAIN STREAMS ****
      ------------------------------------------------------------------------

      The following data inside Main Stream is listed:
      In Main Stream number: 2
      Stream flow area =       7.560(Ac.)
      Runoff from this stream =      25.525(CFS)
      Time of concentration =     8.35 min.
      Rainfall intensity =      3.847(In/Hr)
      Summary of stream data:

      Stream    Flow rate       TC              Rainfall Intensity
       No.        (CFS)        (min)                  (In/Hr)

      1        32.427      20.02                2.377
      2        25.525       8.35                3.847
      Largest stream flow has longer time of concentration
      Qp =      32.427 + sum of
              Qb          Ia/Ib
              25.525 *     0.618 =      15.772
      Qp =      48.199

      Total of 2 main streams to confluence:
      Flow rates before confluence point:
            32.427       25.525
      Area of streams before confluence:
             16.130        7.560


      Results of confluence:
      Total flow rate =      48.199(CFS)
      Time of concentration =     20.025 min.
      Effective stream area after confluence  =      23.690(Ac.)
      End of computations, total study area =          23.690 (Ac.)
```

PRE-DEVELOPMENT

Q100 PHASE 1
(APPROVED)
CIVIL D

WEST-Q100
SEE APPROVED
REPORT FOR Q10 &
Q100

WEST

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989 - 1999 Version 6.0

Rational Hydrology Study Date: 12/13/10
File:THW100.out

********* Hydrology Study Control Information **********

English (in-lb) Units used in input data file

FOR OFFICIAL USE ONLY - CALTRANS San Bernardino - S/N 661

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [Murrieta,Tmc,Rnch CaNorco] area used.
10 year storm 10 minute intensity = 2.360(In/Hr)
10 year storm 60 minute intensity = 0.880(In/Hr)
100 year storm 10 minute intensity = 3.480(In/Hr)
100 year storm 60 minute intensity = 1.300(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity = 1.300(In/Hr)
Slope of intensity duration curve = 0.5500

++

Process from Point/Station 6.000 to Point/Station 7.000

**** INITIAL AREA EVALUATION ****

Initial area flow distance = 390.000(Ft.)
Top (of initial area) elevation = 1057.000(Ft.)
Bottom (of initial area) elevation = 1052.500(Ft.)
Difference in elevation = 4.500(Ft.)
Slope = 0.01154 s(percent)= 1.15
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 7.964 min.
Rainfall intensity = 3.947(In/Hr) for a 100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.888
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000

```
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      2.384(CFS)
Total initial stream area =        0.680(Ac.)
Pervious area fraction = 0.100

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
Process from Point/Station        7.000 to Point/Station
8.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------

Upstream point/station elevation =  1050.990(Ft.)
Downstream point/station elevation =  1050.370(Ft.)
Pipe length =   135.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     2.384(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     2.384(CFS)
Normal flow depth in pipe =     9.70(In.)
Flow top width inside pipe =     9.44(In.)
Critical Depth =    7.93(In.)
Pipe flow velocity =      3.50(Ft/s)
Travel time through pipe =    0.64 min.
Time of concentration (TC) =     8.61 min.

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++++
Process from Point/Station        7.000 to Point/Station
8.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------

Along Main Stream number: 1 in normal stream number 1
Stream flow area =       0.680(Ac.)
Runoff from this stream =       2.384(CFS)
Time of concentration =     8.61 min.
Rainfall intensity =     3.783(In/Hr)
Summary of stream data:

Stream    Flow rate       TC              Rainfall Intensity
 No.        (CFS)        (min)                  (In/Hr)


1         2.384       8.61                    3.783
Largest stream flow has longer time of concentration
Qp =       2.384 + sum of
Qp =       2.384

Total of 1 streams to confluence:
Flow rates before confluence point:
        2.384
Area of streams before confluence:
         0.680
Results of confluence:
Total flow rate =       2.384(CFS)
Time of concentration =     8.606 min.
Effective stream area after confluence =       0.680(Ac.)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station        9.000 to Point/Station
10.000
      **** INITIAL AREA EVALUATION ****
-----------------------------------------------------------------------------
      Initial area flow distance =   340.000(Ft.)
      Top (of initial area) elevation =  1056.200(Ft.)
      Bottom (of initial area) elevation =  1052.500(Ft.)
      Difference in elevation =      3.700(Ft.)
      Slope =    0.01088  s(percent)=       1.09
      TC = k(0.300)*[(length^3)/(elevation change)]^0.2
      Initial area time of concentration =    7.627 min.
      Rainfall intensity =       4.042(In/Hr) for a   100.0 year storm
      COMMERCIAL subarea type
      Runoff Coefficient = 0.888
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 2)  =  69.00
      Pervious area fraction =  0.100; Impervious fraction =  0.900
      Initial subarea runoff =       6.751(CFS)
      Total initial stream area =        1.880(Ac.)
      Pervious area fraction = 0.100

      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station       10.000 to Point/Station
8.000
      **** PIPEFLOW TRAVEL TIME (Program estimated size) ****
-----------------------------------------------------------------------------
      Upstream point/station elevation =  1051.000(Ft.)
      Downstream point/station elevation =  1050.370(Ft.)
      Pipe length =    60.00(Ft.)   Manning's N = 0.013
      No. of pipes = 1  Required pipe flow =     6.751(CFS)
      Nearest computed pipe diameter =     18.00(In.)
      Calculated individual pipe flow =     6.751(CFS)
      Normal flow depth in pipe =   10.34(In.)
      Flow top width inside pipe =   17.80(In.)
      Critical Depth =   12.07(In.)
      Pipe flow velocity =      6.43(Ft/s)
      Travel time through pipe =    0.16 min.
      Time of concentration (TC) =     7.78 min.

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++++
      Process from Point/Station       10.000 to Point/Station
8.000
      **** CONFLUENCE OF MINOR STREAMS ****
-----------------------------------------------------------------------------
      Along Main Stream number: 1 in normal stream number 2
      Stream flow area =       1.880(Ac.)
      Runoff from this stream =       6.751(CFS)
      Time of concentration =    7.78 min.
```

```
Rainfall intensity =      3.998(In/Hr)
Summary of stream data:

Stream    Flow rate      TC              Rainfall Intensity
 No.        (CFS)       (min)                 (In/Hr)


1          2.384       8.61                    3.783
2          6.751       7.78                    3.998
Largest stream flow has longer or shorter time of concentration
Qp =       6.751 + sum of
          Qa           Tb/Ta
           2.384 *     0.904 =       2.156
Qp =       8.907

Total of 2 streams to confluence:
Flow rates before confluence point:
        2.384        6.751
Area of streams before confluence:
        0.680        1.880
Results of confluence:
Total flow rate =       8.907(CFS)
Time of concentration =      7.783 min.
Effective stream area after confluence =       2.560(Ac.)


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++++
      Process from Point/Station        8.000 to Point/Station
11.000
      **** PIPEFLOW TRAVEL TIME (Program estimated size) ****
      ------------------------------------------------------------------------
------
      Upstream point/station elevation =  1050.370(Ft.)
      Downstream point/station elevation =  1050.000(Ft.)
      Pipe length  =    30.00(Ft.)   Manning's N = 0.013
      No. of pipes = 1  Required pipe flow  =     8.907(CFS)
      Nearest computed pipe diameter  =     18.00(In.)
      Calculated individual pipe flow  =     8.907(CFS)
      Normal flow depth in pipe =   11.78(In.)
      Flow top width inside pipe =   17.12(In.)
      Critical Depth =   13.85(In.)
      Pipe flow velocity =      7.27(Ft/s)
      Travel time through pipe =    0.07 min.
      Time of concentration (TC) =     7.85 min.


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      Process from Point/Station        12.000 to Point/Station
11.000
      **** SUBAREA FLOW ADDITION ****
      ------------------------------------------------------------------------
------
      COMMERCIAL subarea type
      Runoff Coefficient = 0.888
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 2)   =  69.00
```

```
      Pervious area fraction =  0.100; Impervious fraction =  0.900
      Time of concentration =     7.85 min.
      Rainfall intensity =      3.978(In/Hr) for a   100.0 year storm
      Subarea runoff =      0.883(CFS) for      0.250(Ac.)
      Total runoff =      9.791(CFS)      Total area =      2.810(Ac.)

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++++
      Process from Point/Station       13.000 to Point/Station
11.000
      **** SUBAREA FLOW ADDITION ****
      ------------------------------------------------------------------------
---
      UNDEVELOPED (poor cover) subarea
      Runoff Coefficient = 0.853
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 2)  =  86.00
      Pervious area fraction =  1.000; Impervious fraction =  0.000
      Time of concentration =     7.85 min.
      Rainfall intensity =      3.978(In/Hr) for a   100.0 year storm
      Subarea runoff =      1.664(CFS) for      0.490(Ac.)
      Total runoff =     11.454(CFS)      Total area =      3.300(Ac.)

      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station       14.000 to Point/Station
11.000
      **** IMPROVED CHANNEL TRAVEL TIME ****
      ------------------------------------------------------------------------
---
      Upstream point elevation =  1056.000(Ft.)
      Downstream point elevation =  1047.000(Ft.)
      Channel length thru subarea  =   730.000(Ft.)
      Channel base width       =   40.000(Ft.)
      Slope or 'Z' of left channel bank =  10.000
      Slope or 'Z' of right channel bank =  10.000
      Estimated mean flow rate at midpoint of channel =     19.871(CFS)
      Manning's 'N'    = 0.030
      Maximum depth of channel  =    2.000(Ft.)
      Flow(q) thru subarea =     19.871(CFS)
      Depth of flow =   0.233(Ft.), Average velocity =   2.011(Ft/s)
      Channel flow top width =   44.668(Ft.)
      Flow Velocity =    2.01(Ft/s)
      Travel time  =    6.05 min.
      Time of concentration =   13.90 min.

      Sub-Channel No. 1 Critical depth =      0.193(Ft.)
        '      '        '     Critical flow top width =     43.867(Ft.)
        '      '        '     Critical flow velocity=    2.451(Ft/s)
        '      '        '     Critical flow area =      8.108(Sq.Ft)

       Adding area flow to channel
      UNDEVELOPED (poor cover) subarea
      Runoff Coefficient = 0.837
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
```

```
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 2)  =  86.00
      Pervious area fraction =  1.000; Impervious fraction =  0.000
      Rainfall intensity =      2.906(In/Hr) for a   100.0 year storm
      Subarea runoff =     11.802(CFS) for      4.850(Ac.)
      Total runoff =     23.256(CFS)      Total area =       8.150(Ac.)

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++++
      Process from Point/Station       11.000 to Point/Station
5.000
      **** PIPEFLOW TRAVEL TIME (Program estimated size) ****
      ------------------------------------------------------------------------
----
      Upstream point/station elevation =  1046.140(Ft.)
      Downstream point/station elevation =  1046.000(Ft.)
      Pipe length  =    65.00(Ft.)   Manning's N = 0.013
      No. of pipes = 1  Required pipe flow  =    23.256(CFS)
      Nearest computed pipe diameter  =     33.00(In.)
      Calculated individual pipe flow  =    23.256(CFS)
      Normal flow depth in pipe =   25.59(In.)
      Flow top width inside pipe =   27.54(In.)
      Critical Depth =   19.16(In.)
      Pipe flow velocity =      4.70(Ft/s)
      Travel time through pipe =    0.23 min.
      Time of concentration (TC) =    14.13 min.

      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station       15.000 to Point/Station
5.000
      **** SUBAREA FLOW ADDITION ****
      ------------------------------------------------------------------------
----
      COMMERCIAL subarea type
      Runoff Coefficient = 0.885
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 2)  =  69.00
      Pervious area fraction =  0.100; Impervious fraction =  0.900
      Time of concentration =    14.13 min.
      Rainfall intensity =      2.879(In/Hr) for a   100.0 year storm
      Subarea runoff =      0.866(CFS) for      0.340(Ac.)
      Total runoff =     24.122(CFS)      Total area =       8.490(Ac.)

      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station        5.000 to Point/Station
12.000
      **** IMPROVED CHANNEL TRAVEL TIME ****
      ------------------------------------------------------------------------
----
      Upstream point elevation =  1046.200(Ft.)
      Downstream point elevation =  1045.840(Ft.)
      Channel length thru subarea  =    52.000(Ft.)
```

```
Channel base width       =   10.000(Ft.)
Slope or 'Z' of left channel bank =   4.000
Slope or 'Z' of right channel bank =   4.000
Estimated mean flow rate at midpoint of channel =     24.520(CFS)
Manning's 'N'    = 0.030
Maximum depth of channel  =    2.000(Ft.)
Flow(q) thru subarea =     24.520(CFS)
Depth of flow =   0.687(Ft.), Average velocity =   2.798(Ft/s)
Channel flow top width =   15.499(Ft.)
Flow Velocity =    2.80(Ft/s)
Travel time  =    0.31 min.
Time of concentration =   14.44 min.

Sub-Channel No. 1 Critical depth =      0.531(Ft.)
  '      '        '     Critical flow top width =     14.250(Ft.)
  '      '        '     Critical flow velocity=    3.807(Ft/s)
  '      '        '     Critical flow area =      6.441(Sq.Ft)

 Adding area flow to channel
COMMERCIAL subarea type
Runoff Coefficient = 0.884
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Rainfall intensity =      2.845(In/Hr) for a   100.0 year storm
Subarea runoff =      0.705(CFS) for      0.280(Ac.)
Total runoff =     24.826(CFS)      Total area =       8.770(Ac.)


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++++
Process from Point/Station        5.000 to Point/Station
12.000
**** CONFLUENCE OF MAIN STREAMS ****
--------------------------------------------------------------------------------

The following data inside Main Stream is listed:
In Main Stream number: 1
Stream flow area =      8.770(Ac.)
Runoff from this stream =     24.826(CFS)
Time of concentration =   14.44 min.
Rainfall intensity =     2.845(In/Hr)
Summary of stream data:

Stream    Flow rate      TC             Rainfall Intensity
 No.        (CFS)       (min)                 (In/Hr)


1       24.826      14.44                2.845
Largest stream flow has longer time of concentration
Qp =     24.826 + sum of
Qp =     24.826

Total of 1 main streams to confluence:
Flow rates before confluence point:
      24.826
Area of streams before confluence:
        8.770
```

Results of confluence:
Total flow rate = 24.826(CFS)
Time of concentration = 14.442 min.
Effective stream area after confluence = 8.770(Ac.)
End of computations, total study area = 8.770 (Ac.)

5b. CIVILD POST-DEVELOPMENT CALCULAITONS

POST-DEVELOPMENT

Q100 PHASE 1 (APPROVED) CIVIL D

EAST-Q100

```
        Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
    Rational Hydrology Study        Date: 05/19/22  File:POST900.out
------------------------------------------------------------------------
POST 900



------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

 English (in-lb) Units used in input data file

------------------------------------------------------------------------


Program License Serial Number 6332

------------------------------------------------------------------------
Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) =  100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [ Murrieta,Tmc,Rnch CaNorco ] area used.
10 year storm 10 minute intensity =  2.360(In/Hr)
10 year storm 60 minute intensity =  0.880(In/Hr)
100 year storm 10 minute intensity =  3.480(In/Hr)
100 year storm 60 minute intensity =  1.300(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity =  1.300(In/Hr)
Slope of intensity duration curve = 0.5500




++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      901.000 to Point/Station      902.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
Initial area flow distance =   103.000(Ft.)
Top (of initial area) elevation =  1065.000(Ft.)
Bottom (of initial area) elevation =  1063.000(Ft.)
Difference in elevation =     2.000(Ft.)
Slope =    0.01942  s(percent)=       1.94
TC = k(0.710)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    9.971 min.
Rainfall intensity =      3.488(In/Hr) for a   100.0 year storm
UNDEVELOPED (fair cover) subarea
Runoff Coefficient = 0.817
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  79.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =      0.256(CFS)
Total initial stream area =        0.090(Ac.)
Pervious area fraction = 1.000


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```

```
Process from Point/Station      902.000 to Point/Station      903.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =      1.361(CFS)
Depth of flow =   0.209(Ft.), Average velocity =   1.298(Ft/s)
    ******* Irregular Channel Data ***********
------------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
    1              0.00              3.60
    2             13.60              0.00
    3             16.60              0.00
    4             39.90              1.50
Manning's 'N' friction factor =   0.035
------------------------------------------------------------------------
Sub-Channel flow  =      1.361(CFS)
  '     '    flow top width =      7.035(Ft.)
  '     '    velocity=    1.298(Ft/s)
  '     '    area =      1.048(Sq.Ft)
  '     '    Froude number =     0.593

Upstream point elevation =  1063.000(Ft.)
Downstream point elevation =  1054.000(Ft.)
Flow length =   756.000(Ft.)
Travel time  =    9.71 min.
Time of concentration =   19.68 min.
Depth of flow =   0.209(Ft.)
Average velocity =   1.298(Ft/s)
Total irregular channel flow =     1.361(CFS)
Irregular channel normal depth above invert elev. =   0.209(Ft.)
Average velocity of channel(s) =   1.298(Ft/s)
 Adding area flow to channel
UNDEVELOPED (fair cover) subarea
Runoff Coefficient = 0.784
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  79.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Rainfall intensity =      2.400(In/Hr) for a   100.0 year storm
Subarea runoff =      2.127(CFS) for      1.130(Ac.)
Total runoff =      2.383(CFS)  Total area =       1.220(Ac.)
Depth of flow =   0.277(Ft.), Average velocity =   1.516(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      903.000 to Point/Station      904.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****

------------------------------------------------------------------------
Upstream point/station elevation =  1051.820(Ft.)
Downstream point/station elevation =  1050.570(Ft.)
Pipe length  =    77.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     2.383(CFS)
Given pipe size =     12.00(In.)
Calculated individual pipe flow  =     2.383(CFS)
Normal flow depth in pipe =    6.18(In.)
Flow top width inside pipe =   11.99(In.)
Critical Depth =    7.93(In.)
Pipe flow velocity =      5.85(Ft/s)
Travel time through pipe =    0.22 min.
Time of concentration (TC) =    19.90 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      904.000 to Point/Station      904.000
**** CONFLUENCE OF MINOR STREAMS ****

------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 1
```

```
Stream flow area =      1.220(Ac.)
Runoff from this stream =      2.383(CFS)
Time of concentration =   19.90 min.
Rainfall intensity =     2.385(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      908.000 to Point/Station      909.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
Initial area flow distance =    85.000(Ft.)
Top (of initial area) elevation =  1068.410(Ft.)
Bottom (of initial area) elevation =  1061.930(Ft.)
Difference in elevation =     6.480(Ft.)
Slope =    0.07624  s(percent)=       7.62
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Warning: TC computed to be less than 5 min.; program is assuming the
time of concentration is 5 minutes.
Initial area time of concentration =    5.000 min.
Rainfall intensity =      5.099(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.891
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)   =  69.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.409(CFS)
Total initial stream area =        0.090(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      909.000 to Point/Station      910.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =      8.429(CFS)
Depth of flow =   0.975(Ft.), Average velocity =   8.868(Ft/s)
    ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
    1              0.00              3.00
    2              3.00              0.00
    3              6.00              3.00
Manning's 'N' friction factor =   0.013
------------------------------------------------------------------
Sub-Channel flow  =      8.429(CFS)
  '     '    flow top width =      1.950(Ft.)
  '     '    velocity=    8.868(Ft/s)
  '     '    area =      0.950(Sq.Ft)
  '     '    Froude number =     2.238

Upstream point elevation =  1061.930(Ft.)
Downstream point elevation =  1050.000(Ft.)
Flow length =   479.000(Ft.)
Travel time  =    0.90 min.
Time of concentration =    5.90 min.
Depth of flow =   0.975(Ft.)
Average velocity =   8.868(Ft/s)
Total irregular channel flow =     8.429(CFS)
Irregular channel normal depth above invert elev. =   0.975(Ft.)
Average velocity of channel(s) =   8.868(Ft/s)
 Adding area flow to channel
COMMERCIAL subarea type
Runoff Coefficient = 0.890
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
```

```
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Rainfall intensity =      4.655(In/Hr) for a   100.0 year storm
Subarea runoff =     15.988(CFS) for      3.860(Ac.)
Total runoff =     16.397(CFS)  Total area =       3.950(Ac.)
Depth of flow =   1.251(Ft.), Average velocity =  10.473(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      910.000 to Point/Station      904.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
______________________________________________________________________________
Upstream point/station elevation =  1049.500(Ft.)
Downstream point/station elevation =  1049.370(Ft.)
Pipe length  =    64.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    16.397(CFS)
Given pipe size =     24.00(In.)
NOTE: Normal flow is pressure flow in user selected pipe size.
The approximate hydraulic grade line above the pipe invert is
     0.841(Ft.)  at the headworks or inlet of the pipe(s)
 Pipe friction loss =      0.336(Ft.)
 Minor friction loss =      0.634(Ft.)  K-factor =   1.50
Pipe flow velocity =      5.22(Ft/s)
Travel time through pipe =    0.20 min.
Time of concentration (TC) =     6.10 min.


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Process from Point/Station      904.000 to Point/Station      904.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      3.950(Ac.)
Runoff from this stream =     16.397(CFS)
Time of concentration =    6.10 min.
Rainfall intensity =     4.569(In/Hr)


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Process from Point/Station      912.000 to Point/Station      913.000
**** INITIAL AREA EVALUATION ****
______________________________________________________________________________
Initial area flow distance =   102.000(Ft.)
Top (of initial area) elevation =  1057.400(Ft.)
Bottom (of initial area) elevation =  1057.390(Ft.)
Difference in elevation =     0.010(Ft.)
Slope =    0.00010  s(percent)=       0.01
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   12.086 min.
Rainfall intensity =      3.138(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.886
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.445(CFS)
Total initial stream area =        0.160(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      913.000 to Point/Station      904.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
______________________________________________________________________________
```

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Upstream point/station elevation =  1051.190(Ft.)
Downstream point/station elevation =  1050.530(Ft.)
Pipe length  =    43.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     0.445(CFS)
Given pipe size =     12.00(In.)
Calculated individual pipe flow  =     0.445(CFS)
Normal flow depth in pipe =    2.57(In.)
Flow top width inside pipe =    9.85(In.)
Critical Depth =    3.31(In.)
Pipe flow velocity =      3.60(Ft/s)
Travel time through pipe =    0.20 min.
Time of concentration (TC) =    12.29 min.


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Process from Point/Station      904.000 to Point/Station      904.000
**** CONFLUENCE OF MINOR STREAMS ****
____________________________________________________________________________
Along Main Stream number: 1 in normal stream number 3
Stream flow area =      0.160(Ac.)
Runoff from this stream =      0.445(CFS)
Time of concentration =   12.29 min.
Rainfall intensity =     3.110(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      905.000 to Point/Station      906.000
**** INITIAL AREA EVALUATION ****
____________________________________________________________________________
Initial area flow distance =   100.000(Ft.)
Top (of initial area) elevation =  1061.650(Ft.)
Bottom (of initial area) elevation =  1060.400(Ft.)
Difference in elevation =     1.250(Ft.)
Slope =    0.01250  s(percent)=       1.25
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Warning: TC computed to be less than 5 min.; program is assuming the
time of concentration is 5 minutes.
Initial area time of concentration =    5.000 min.
Rainfall intensity =      5.099(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.891
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.454(CFS)
Total initial stream area =        0.100(Ac.)
Pervious area fraction = 0.100


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Process from Point/Station      906.000 to Point/Station      907.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
____________________________________________________________________________
Estimated mean flow rate at midpoint of channel =      1.664(CFS)
Depth of flow =   0.115(Ft.), Average velocity =   2.404(Ft/s)
    ******* Irregular Channel Data ***********
---------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
    1              0.00              0.25
    2             26.00              0.00
    3             26.50              0.50
Manning's 'N' friction factor =   0.013
---------------------------------------------------------------
Sub-Channel flow  =      1.664(CFS)
  '     '    flow top width =     12.058(Ft.)
```

```
'     '    velocity=    2.404(Ft/s)
'     '    area =      0.692(Sq.Ft)
'     '    Froude number =     1.768

Upstream point elevation =  1060.400(Ft.)
Downstream point elevation =  1055.000(Ft.)
Flow length =   269.000(Ft.)
Travel time  =    1.86 min.
Time of concentration =    6.86 min.
Depth of flow =   0.115(Ft.)
Average velocity =   2.404(Ft/s)
Total irregular channel flow =     1.664(CFS)
Irregular channel normal depth above invert elev. =   0.115(Ft.)
Average velocity of channel(s) =   2.404(Ft/s)
 Adding area flow to channel
COMMERCIAL subarea type
Runoff Coefficient = 0.889
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Rainfall intensity =      4.283(In/Hr) for a   100.0 year storm
Subarea runoff =      2.361(CFS) for      0.620(Ac.)
Total runoff =      2.815(CFS)  Total area =       0.720(Ac.)
Depth of flow =   0.140(Ft.), Average velocity =   2.742(Ft/s)


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Process from Point/Station      907.000 to Point/Station      904.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
________________________________________________________________________
Upstream point/station elevation =  1050.960(Ft.)
Downstream point/station elevation =  1049.620(Ft.)
Pipe length  =    13.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     2.815(CFS)
Given pipe size =     12.00(In.)
Calculated individual pipe flow  =     2.815(CFS)
Normal flow depth in pipe =    4.05(In.)
Flow top width inside pipe =   11.35(In.)
Critical Depth =    8.63(In.)
Pipe flow velocity =     12.05(Ft/s)
Travel time through pipe =    0.02 min.
Time of concentration (TC) =     6.88 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      904.000 to Point/Station      904.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 4
Stream flow area =      0.720(Ac.)
Runoff from this stream =      2.815(CFS)
Time of concentration =    6.88 min.
Rainfall intensity =     4.277(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)


1        2.383     19.90                2.385
2       16.397      6.10                4.569
3        0.445     12.29                3.110
4        2.815      6.88                4.277
Largest stream flow has longer or shorter time of concentration
Qp =     16.397 + sum of
      Qa          Tb/Ta
```

```
            2.383 *    0.307 =      0.731
          Qa           Tb/Ta
            0.445 *    0.497 =      0.221
          Qa           Tb/Ta
            2.815 *    0.887 =      2.497
      Qp =     19.846

      Total of 4 streams to confluence:
      Flow rates before confluence point:
            2.383      16.397       0.445       2.815
      Area of streams before confluence:
             1.220        3.950        0.160        0.720
      Results of confluence:
      Total flow rate =     19.846(CFS)
      Time of concentration =     6.105 min.
      Effective stream area after confluence =      6.050(Ac.)


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
      Process from Point/Station      904.000 to Point/Station      915.000
      **** PIPEFLOW TRAVEL TIME (User specified size) ****
      ________________________________________________________________________
      Upstream point/station elevation =  1049.370(Ft.)
      Downstream point/station elevation =  1048.930(Ft.)
      Pipe length  =   124.00(Ft.)   Manning's N = 0.013
      No. of pipes = 1  Required pipe flow  =    19.846(CFS)
      Given pipe size =     36.00(In.)
      Calculated individual pipe flow  =    19.846(CFS)
      Normal flow depth in pipe =   17.99(In.)
      Flow top width inside pipe =   36.00(In.)
      Critical Depth =   17.13(In.)
      Pipe flow velocity =      5.62(Ft/s)
      Travel time through pipe =    0.37 min.
      Time of concentration (TC) =     6.47 min.


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
      Process from Point/Station      915.000 to Point/Station      915.000
      **** CONFLUENCE OF MINOR STREAMS ****
      ________________________________________________________________________
      Along Main Stream number: 1 in normal stream number 1
      Stream flow area =      6.050(Ac.)
      Runoff from this stream =     19.846(CFS)
      Time of concentration =    6.47 min.
      Rainfall intensity =     4.424(In/Hr)


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
      Process from Point/Station      912.000 to Point/Station      914.000
      **** INITIAL AREA EVALUATION ****
      ________________________________________________________________________
      Initial area flow distance =   121.000(Ft.)
      Top (of initial area) elevation =  1057.400(Ft.)
      Bottom (of initial area) elevation =  1057.390(Ft.)
      Difference in elevation =     0.010(Ft.)
      Slope =    0.00008  s(percent)=       0.01
      TC = k(0.300)*[(length^3)/(elevation change)]^0.2
      Initial area time of concentration =   13.390 min.
      Rainfall intensity =      2.966(In/Hr) for a   100.0 year storm
      COMMERCIAL subarea type
      Runoff Coefficient = 0.885
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 2)  =  69.00
      Pervious area fraction =  0.100; Impervious fraction =  0.900
      Initial subarea runoff =      0.420(CFS)
      Total initial stream area =        0.160(Ac.)
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Pervious area fraction = 0.100


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Process from Point/Station      914.000 to Point/Station      915.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
------------------------------------------------------------------------
Upstream point/station elevation =  1051.040(Ft.)
Downstream point/station elevation =  1048.930(Ft.)
Pipe length  =    64.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     0.420(CFS)
Given pipe size =     24.00(In.)
Calculated individual pipe flow  =     0.420(CFS)
Normal flow depth in pipe =    1.71(In.)
Flow top width inside pipe =   12.35(In.)
Critical Depth =    2.64(In.)
Pipe flow velocity =      4.22(Ft/s)
Travel time through pipe =    0.25 min.
Time of concentration (TC) =    13.64 min.


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Process from Point/Station      915.000 to Point/Station      915.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      0.160(Ac.)
Runoff from this stream =      0.420(CFS)
Time of concentration =   13.64 min.
Rainfall intensity =     2.936(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)


1       19.846      6.47                 4.424
2        0.420     13.64                 2.936
Largest stream flow has longer or shorter time of concentration
Qp =     19.846 + sum of
      Qa          Tb/Ta
       0.420 *    0.474 =      0.199
Qp =     20.045

Total of 2 streams to confluence:
Flow rates before confluence point:
      19.846       0.420
Area of streams before confluence:
        6.050        0.160
Results of confluence:
Total flow rate =     20.045(CFS)
Time of concentration =     6.472 min.
Effective stream area after confluence =      6.210(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      915.000 to Point/Station      916.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
------------------------------------------------------------------------
Upstream point/station elevation =  1048.930(Ft.)
Downstream point/station elevation =  1046.290(Ft.)
Pipe length  =   140.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    20.045(CFS)
Given pipe size =     36.00(In.)
Calculated individual pipe flow  =    20.045(CFS)
Normal flow depth in pipe =   11.44(In.)
Flow top width inside pipe =   33.52(In.)
Critical Depth =   17.24(In.)
Pipe flow velocity =     10.38(Ft/s)
```

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      Travel time through pipe =    0.22 min.
      Time of concentration (TC) =     6.70 min.


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
      Process from Point/Station      916.000 to Point/Station      916.000
      **** CONFLUENCE OF MAIN STREAMS ****
      ________________________________________________________________________
      The following data inside Main Stream is listed:
      In Main Stream number: 1
      Stream flow area =      6.210(Ac.)
      Runoff from this stream =     20.045(CFS)
      Time of concentration =    6.70 min.
      Rainfall intensity =     4.342(In/Hr)
      Program is now starting with Main Stream No. 2


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
      Process from Point/Station      921.000 to Point/Station      922.000
      **** INITIAL AREA EVALUATION ****
      ________________________________________________________________________
      Initial area flow distance =   160.000(Ft.)
      Top (of initial area) elevation =  1057.400(Ft.)
      Bottom (of initial area) elevation =  1057.390(Ft.)
      Difference in elevation =     0.010(Ft.)
      Slope =    0.00006  s(percent)=       0.01
      TC = k(0.300)*[(length^3)/(elevation change)]^0.2
      Initial area time of concentration =   15.834 min.
      Rainfall intensity =      2.705(In/Hr) for a   100.0 year storm
      COMMERCIAL subarea type
      Runoff Coefficient = 0.884
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 2)  =  69.00
      Pervious area fraction =  0.100; Impervious fraction =  0.900
      Initial subarea runoff =      0.908(CFS)
      Total initial stream area =        0.380(Ac.)
      Pervious area fraction = 0.100


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
      Process from Point/Station      923.000 to Point/Station      923.000
      **** SUBAREA FLOW ADDITION ****
      ________________________________________________________________________
      COMMERCIAL subarea type
      Runoff Coefficient = 0.884
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 2)  =  69.00
      Pervious area fraction =  0.100; Impervious fraction =  0.900
      Time of concentration =    15.83 min.
      Rainfall intensity =      2.705(In/Hr) for a   100.0 year storm
      Subarea runoff =      1.100(CFS) for      0.460(Ac.)
      Total runoff =      2.008(CFS)  Total area =       0.840(Ac.)


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
      Process from Point/Station      923.000 to Point/Station      923.000
      **** SUBAREA FLOW ADDITION ****
      ________________________________________________________________________
      COMMERCIAL subarea type
      Runoff Coefficient = 0.884
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
```

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Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Time of concentration =  15.83 min.
Rainfall intensity =  2.705(In/Hr) for a  100.0 year storm
Subarea runoff =  0.550(CFS) for  0.230(Ac.)
Total runoff =  2.558(CFS)  Total area =  1.070(Ac.)


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Process from Point/Station  923.000 to Point/Station  923.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Runoff Coefficient = 0.884
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Time of concentration =  15.83 min.
Rainfall intensity =  2.705(In/Hr) for a  100.0 year storm
Subarea runoff =  1.123(CFS) for  0.470(Ac.)
Total runoff =  3.681(CFS)  Total area =  1.540(Ac.)


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Process from Point/Station  923.000 to Point/Station  923.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 2 in normal stream number 1
Stream flow area =  1.540(Ac.)
Runoff from this stream =  3.681(CFS)
Time of concentration =  15.83 min.
Rainfall intensity =  2.705(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station  924.000 to Point/Station  925.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
Initial area flow distance =  101.000(Ft.)
Top (of initial area) elevation =  1057.400(Ft.)
Bottom (of initial area) elevation =  1055.130(Ft.)
Difference in elevation =  2.270(Ft.)
Slope =  0.02248  s(percent)=  2.25
TC = k(0.710)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =  9.608 min.
Rainfall intensity =  3.560(In/Hr) for a  100.0 year storm
UNDEVELOPED (fair cover) subarea
Runoff Coefficient = 0.819
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  79.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =  0.379(CFS)
Total initial stream area =  0.130(Ac.)
Pervious area fraction = 1.000


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Process from Point/Station  925.000 to Point/Station  923.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Estimated mean flow rate at midpoint of channel =  1.297(CFS)
Depth of flow =  0.300(Ft.), Average velocity =  0.720(Ft/s)
```

```
      ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
    1              0.00              1.00
    2             20.00              0.00
    3             40.00              1.00
Manning's 'N' friction factor =   0.035
------------------------------------------------------------------
Sub-Channel flow  =      1.297(CFS)
  '     '    flow top width =     12.005(Ft.)
  '     '    velocity=    0.720(Ft/s)
  '     '    area =      1.801(Sq.Ft)
  '     '    Froude number =     0.327

Upstream point elevation =  1055.130(Ft.)
Downstream point elevation =  1055.000(Ft.)
Flow length =    36.000(Ft.)
Travel time  =    0.83 min.
Time of concentration =   10.44 min.
Depth of flow =   0.300(Ft.)
Average velocity =   0.720(Ft/s)
Total irregular channel flow =     1.297(CFS)
Irregular channel normal depth above invert elev. =   0.300(Ft.)
Average velocity of channel(s) =   0.720(Ft/s)
 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.846
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  86.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Rainfall intensity =      3.401(In/Hr) for a   100.0 year storm
Subarea runoff =      1.813(CFS) for      0.630(Ac.)
Total runoff =      2.191(CFS)  Total area =       0.760(Ac.)
Depth of flow =   0.365(Ft.), Average velocity =   0.821(Ft/s)


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Process from Point/Station      923.000 to Point/Station      923.000
**** CONFLUENCE OF MINOR STREAMS ****
_________________________________________________________________________
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      0.760(Ac.)
Runoff from this stream =      2.191(CFS)
Time of concentration =   10.44 min.
Rainfall intensity =     3.401(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)


1        3.681     15.83                2.705
2        2.191     10.44                3.401
Largest stream flow has longer time of concentration
Qp =      3.681 + sum of
      Qb         Ia/Ib
       2.191 *    0.795 =      1.743
Qp =      5.424

Total of 2 streams to confluence:
Flow rates before confluence point:
       3.681       2.191
Area of streams before confluence:
        1.540        0.760
Results of confluence:
```

```
Total flow rate =      5.424(CFS)
Time of concentration =    15.834 min.
Effective stream area after confluence =      2.300(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      923.000 to Point/Station      920.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------
Upstream point/station elevation =  1053.000(Ft.)
Downstream point/station elevation =  1048.740(Ft.)
Pipe length  =   388.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     5.424(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =     5.424(CFS)
Normal flow depth in pipe =   10.16(In.)
Flow top width inside pipe =   14.02(In.)
Critical Depth =   11.33(In.)
Pipe flow velocity =      6.13(Ft/s)
Travel time through pipe =    1.05 min.
Time of concentration (TC) =    16.89 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      920.000 to Point/Station      920.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      2.300(Ac.)
Runoff from this stream =      5.424(CFS)
Time of concentration =   16.89 min.
Rainfall intensity =     2.611(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      917.000 to Point/Station      918.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
Initial area flow distance =   100.000(Ft.)
Top (of initial area) elevation =  1061.650(Ft.)
Bottom (of initial area) elevation =  1057.000(Ft.)
Difference in elevation =     4.650(Ft.)
Slope =    0.04650  s(percent)=       4.65
TC = k(0.390)*[(length^3)/(elevation change)]^0.2
Warning: TC computed to be less than 5 min.; program is assuming the
time of concentration is 5 minutes.
Initial area time of concentration =    5.000 min.
Rainfall intensity =      5.099(In/Hr) for a   100.0 year storm
SINGLE FAMILY (1/4 Acre Lot)
Runoff Coefficient = 0.853
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.500; Impervious fraction =  0.500
Initial subarea runoff =      0.435(CFS)
Total initial stream area =        0.100(Ac.)
Pervious area fraction = 0.500


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Process from Point/Station      918.000 to Point/Station      919.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =      1.630(CFS)
Depth of flow =   0.132(Ft.), Average velocity =   3.721(Ft/s)
    ******* Irregular Channel Data ***********
------------------------------------------------------------------
```

```
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
    1              0.00              1.00
    2             25.00              0.00
    3             50.00              1.00
Manning's 'N' friction factor =   0.013
-----------------------------------------------------------------
Sub-Channel flow  =      1.631(CFS)
  '     '    flow top width =      6.619(Ft.)
  '     '    velocity=    3.721(Ft/s)
  '     '    area =      0.438(Sq.Ft)
  '     '    Froude number =     2.549

Upstream point elevation =  1058.000(Ft.)
Downstream point elevation =  1052.730(Ft.)
Flow length =   133.000(Ft.)
Travel time  =    0.60 min.
Time of concentration =    5.60 min.
Depth of flow =   0.132(Ft.)
Average velocity =   3.721(Ft/s)
Total irregular channel flow =     1.630(CFS)
Irregular channel normal depth above invert elev. =   0.132(Ft.)
Average velocity of channel(s) =   3.721(Ft/s)
 Adding area flow to channel
APARTMENT subarea type
Runoff Coefficient = 0.880
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.200; Impervious fraction =  0.800
Rainfall intensity =      4.793(In/Hr) for a   100.0 year storm
Subarea runoff =      2.320(CFS) for      0.550(Ac.)
Total runoff =      2.755(CFS)  Total area =       0.650(Ac.)
Depth of flow =   0.161(Ft.), Average velocity =   4.243(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      919.000 to Point/Station      920.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  1049.200(Ft.)
Downstream point/station elevation =  1048.740(Ft.)
Pipe length  =   161.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     2.755(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =     2.755(CFS)
Normal flow depth in pipe =   10.13(In.)
Flow top width inside pipe =   14.05(In.)
Critical Depth =    7.99(In.)
Pipe flow velocity =      3.12(Ft/s)
Travel time through pipe =    0.86 min.
Time of concentration (TC) =     6.45 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      920.000 to Point/Station      920.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      0.650(Ac.)
Runoff from this stream =      2.755(CFS)
Time of concentration =    6.45 min.
Rainfall intensity =     4.431(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)
```

```
1        5.424     16.89                2.611
2        2.755      6.45                4.431
Largest stream flow has longer time of concentration
Qp =      5.424 + sum of
      Qb         Ia/Ib
       2.755 *    0.589 =      1.623
Qp =      7.047

Total of 2 streams to confluence:
Flow rates before confluence point:
       5.424       2.755
Area of streams before confluence:
        2.300        0.650
Results of confluence:
Total flow rate =      7.047(CFS)
Time of concentration =    16.889 min.
Effective stream area after confluence =      2.950(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      920.000 to Point/Station      916.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
________________________________________________________________________
Upstream point/station elevation =  1048.740(Ft.)
Downstream point/station elevation =  1046.290(Ft.)
Pipe length  =   123.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     7.047(CFS)
Given pipe size =     18.00(In.)
Calculated individual pipe flow  =     7.047(CFS)
Normal flow depth in pipe =    8.74(In.)
Flow top width inside pipe =   17.99(In.)
Critical Depth =   12.33(In.)
Pipe flow velocity =      8.29(Ft/s)
Travel time through pipe =    0.25 min.
Time of concentration (TC) =    17.14 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      916.000 to Point/Station      916.000
**** CONFLUENCE OF MAIN STREAMS ****
________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 2
Stream flow area =      2.950(Ac.)
Runoff from this stream =      7.047(CFS)
Time of concentration =   17.14 min.
Rainfall intensity =     2.590(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)


1       20.045      6.70             4.342
2        7.047     17.14             2.590
Largest stream flow has longer or shorter time of concentration
Qp =     20.045 + sum of
      Qa          Tb/Ta
       7.047 *    0.391 =      2.754
Qp =     22.799

Total of 2 main streams to confluence:
Flow rates before confluence point:
      20.045       7.047
Area of streams before confluence:
        6.210        2.950
```

```
967
968       Results of confluence:
969       Total flow rate =     22.799(CFS)
970       Time of concentration =     6.697 min.
971       Effective stream area after confluence  =      9.160(Ac.)
972       End of computations, total study area =            9.16 (Ac.)
973       The following figures may
974       be used for a unit hydrograph study of the same area.
975
976       Area averaged pervious area fraction(Ap) = 0.305
977       Area averaged RI index number =  71.6
978
979
980
```

```
        Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
    Rational Hydrology Study        Date: 05/19/22  File:POST1000.out
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POST1000



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 *********   Hydrology Study Control Information **********

 English (in-lb) Units used in input data file

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Program License Serial Number 6332

------------------------------------------------------------------------
Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) =  100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [ Murrieta,Tmc,Rnch CaNorco ] area used.
10 year storm 10 minute intensity =  2.360(In/Hr)
10 year storm 60 minute intensity =  0.880(In/Hr)
100 year storm 10 minute intensity =  3.480(In/Hr)
100 year storm 60 minute intensity =  1.300(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity =  1.300(In/Hr)
Slope of intensity duration curve = 0.5500




++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1001.000 to Point/Station     1002.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
Initial area flow distance =   104.000(Ft.)
Top (of initial area) elevation =  1068.000(Ft.)
Bottom (of initial area) elevation =  1067.800(Ft.)
Difference in elevation =     0.200(Ft.)
Slope =    0.00192  s(percent)=       0.19
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    6.716 min.
Rainfall intensity =      4.335(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.889
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.347(CFS)
Total initial stream area =        0.090(Ac.)
Pervious area fraction = 0.100


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Process from Point/Station     1002.000 to Point/Station     1003.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

____________________________________________________________________
Estimated mean flow rate at midpoint of channel =      2.197(CFS)
Depth of flow =   0.123(Ft.), Average velocity =   2.755(Ft/s)
    ******* Irregular Channel Data **********
--------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
    1              0.00              0.25
    2             26.00              0.00
    3             26.50              0.50
Manning's 'N' friction factor =   0.013
--------------------------------------------------------------------
Sub-Channel flow  =      2.197(CFS)
  '     '    flow top width =     12.942(Ft.)
  '     '    velocity=    2.755(Ft/s)
  '     '    area =      0.798(Sq.Ft)
  '     '    Froude number =     1.956

Upstream point elevation =  1067.800(Ft.)
Downstream point elevation =  1053.000(Ft.)
Flow length =   617.000(Ft.)
Travel time  =    3.73 min.
Time of concentration =   10.45 min.
Depth of flow =   0.123(Ft.)
Average velocity =   2.755(Ft/s)
Total irregular channel flow =     2.197(CFS)
Irregular channel normal depth above invert elev. =   0.123(Ft.)
Average velocity of channel(s) =   2.755(Ft/s)
 Adding area flow to channel
MOBILE HOME PARK subarea type
Runoff Coefficient = 0.866
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.250; Impervious fraction =  0.750
Rainfall intensity =      3.400(In/Hr) for a   100.0 year storm
Subarea runoff =      3.622(CFS) for      1.230(Ac.)
Total runoff =      3.969(CFS)  Total area =       1.320(Ac.)
Depth of flow =   0.154(Ft.), Average velocity =   3.194(Ft/s)


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Process from Point/Station     1003.000 to Point/Station     1004.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****

____________________________________________________________________
Upstream point/station elevation =  1050.000(Ft.)
Downstream point/station elevation =  1044.650(Ft.)
Pipe length  =   111.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     3.969(CFS)
Given pipe size =     24.00(In.)
Calculated individual pipe flow  =     3.969(CFS)
Normal flow depth in pipe =    4.59(In.)
Flow top width inside pipe =   18.87(In.)
Critical Depth =    8.38(In.)
Pipe flow velocity =      9.46(Ft/s)
Travel time through pipe =    0.20 min.
Time of concentration (TC) =    10.64 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1004.000 to Point/Station     1004.000
**** CONFLUENCE OF MINOR STREAMS ****

____________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      1.320(Ac.)
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```
Runoff from this stream =      3.969(CFS)
Time of concentration =   10.64 min.
Rainfall intensity =     3.365(In/Hr)


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Process from Point/Station      916.000 to Point/Station      916.000
**** USER DEFINED FLOW INFORMATION AT A POINT ****
________________________________________________________________________
Rainfall intensity =      4.342(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.889
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
User specified values are as follows:
TC =   6.70 min.  Rain intensity =       4.34(In/Hr)
Total area =         9.16(Ac.)  Total runoff =     22.80(CFS)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      916.000 to Point/Station     1004.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
________________________________________________________________________
Upstream point/station elevation =  1046.320(Ft.)
Downstream point/station elevation =  1046.290(Ft.)
Pipe length  =   161.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    22.799(CFS)
Given pipe size =     24.00(In.)
NOTE: Normal flow is pressure flow in user selected pipe size.
The approximate hydraulic grade line above the pipe invert is
     2.831(Ft.)  at the headworks or inlet of the pipe(s)
 Pipe friction loss =      1.635(Ft.)
 Minor friction loss =      1.227(Ft.)  K-factor =   1.50
Pipe flow velocity =      7.26(Ft/s)
Travel time through pipe =    0.37 min.
Time of concentration (TC) =     7.07 min.


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Process from Point/Station     1004.000 to Point/Station     1004.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      9.160(Ac.)
Runoff from this stream =     22.799(CFS)
Time of concentration =    7.07 min.
Rainfall intensity =     4.216(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)


1        3.969     10.64                  3.365
2       22.799      7.07                  4.216
Largest stream flow has longer or shorter time of concentration
Qp =     22.799 + sum of
      Qa          Tb/Ta
       3.969 *    0.664 =      2.635
Qp =     25.434

Total of 2 streams to confluence:
Flow rates before confluence point:
       3.969      22.799
Area of streams before confluence:
```

```
        1.320        9.160
Results of confluence:
Total flow rate =     25.434(CFS)
Time of concentration =     7.067 min.
Effective stream area after confluence =     10.480(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1004.000 to Point/Station     1007.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
________________________________________________________________________
Upstream point/station elevation =  1046.290(Ft.)
Downstream point/station elevation =  1044.650(Ft.)
Pipe length  =   347.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    25.434(CFS)
Given pipe size =     24.00(In.)
NOTE: Normal flow is pressure flow in user selected pipe size.
The approximate hydraulic grade line above the pipe invert is
     4.271(Ft.)  at the headworks or inlet of the pipe(s)
 Pipe friction loss =      4.385(Ft.)
 Minor friction loss =      1.527(Ft.)  K-factor =   1.50
Pipe flow velocity =      8.10(Ft/s)
Travel time through pipe =    0.71 min.
Time of concentration (TC) =     7.78 min.


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Process from Point/Station     1007.000 to Point/Station     1007.000
**** CONFLUENCE OF MAIN STREAMS ****
________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 1
Stream flow area =     10.480(Ac.)
Runoff from this stream =     25.434(CFS)
Time of concentration =    7.78 min.
Rainfall intensity =     3.998(In/Hr)
Program is now starting with Main Stream No. 2


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Process from Point/Station     1111.000 to Point/Station     1112.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
Initial area flow distance =   107.000(Ft.)
Top (of initial area) elevation =  1055.000(Ft.)
Bottom (of initial area) elevation =  1054.500(Ft.)
Difference in elevation =     0.500(Ft.)
Slope =    0.00467  s(percent)=       0.47
TC = k(0.940)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   17.822 min.
Rainfall intensity =      2.535(In/Hr) for a   100.0 year storm
UNDEVELOPED (good cover) subarea
Runoff Coefficient = 0.760
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  74.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =      0.193(CFS)
Total initial stream area =        0.100(Ac.)
Pervious area fraction = 1.000


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Process from Point/Station     1112.000 to Point/Station     1110.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Estimated mean flow rate at midpoint of channel =      0.645(CFS)
```

```
Depth of flow =   0.174(Ft.), Average velocity =   0.713(Ft/s)
    ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
    1              0.00              0.50
    2             15.00              0.00
    3             30.00              0.50
Manning's 'N' friction factor =   0.035
------------------------------------------------------------------
Sub-Channel flow  =      0.645(CFS)
  '     '    flow top width =     10.415(Ft.)
  '     '    velocity=    0.713(Ft/s)
  '     '    area =      0.904(Sq.Ft)
  '     '    Froude number =     0.427

Upstream point elevation =  1054.500(Ft.)
Downstream point elevation =  1054.000(Ft.)
Flow length =    68.000(Ft.)
Travel time  =    1.59 min.
Time of concentration =   19.41 min.
Depth of flow =   0.174(Ft.)
Average velocity =   0.713(Ft/s)
Total irregular channel flow =     0.645(CFS)
Irregular channel normal depth above invert elev. =   0.174(Ft.)
Average velocity of channel(s) =   0.713(Ft/s)
 Adding area flow to channel
UNDEVELOPED (good cover) subarea
Runoff Coefficient = 0.754
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  74.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Rainfall intensity =      2.418(In/Hr) for a   100.0 year storm
Subarea runoff =      0.857(CFS) for      0.470(Ac.)
Total runoff =      1.049(CFS)  Total area =       0.570(Ac.)
Depth of flow =   0.208(Ft.), Average velocity =   0.806(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1110.000 to Point/Station     1110.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      0.570(Ac.)
Runoff from this stream =      1.049(CFS)
Time of concentration =   19.41 min.
Rainfall intensity =     2.418(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1008.000 to Point/Station     1009.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
Initial area flow distance =   131.000(Ft.)
Top (of initial area) elevation =  1060.000(Ft.)
Bottom (of initial area) elevation =  1059.000(Ft.)
Difference in elevation =     1.000(Ft.)
Slope =    0.00763  s(percent)=       0.76
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    5.591 min.
Rainfall intensity =      4.795(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.890
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
```

```
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      2.134(CFS)
Total initial stream area =        0.500(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1009.000 to Point/Station     1110.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  1059.000(Ft.)
Downstream point/station elevation =  1054.000(Ft.)
Pipe length  =    74.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     2.134(CFS)
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =     2.134(CFS)
Normal flow depth in pipe =    4.48(In.)
Flow top width inside pipe =    9.00(In.)
Critical Depth =    7.90(In.)
Pipe flow velocity =      9.72(Ft/s)
Travel time through pipe =    0.13 min.
Time of concentration (TC) =     5.72 min.


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Process from Point/Station     1110.000 to Point/Station     1110.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      0.500(Ac.)
Runoff from this stream =      2.134(CFS)
Time of concentration =    5.72 min.
Rainfall intensity =     4.736(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                  (In/Hr)


1        1.049     19.41                 2.418
2        2.134      5.72                 4.736
Largest stream flow has longer or shorter time of concentration
Qp =      2.134 + sum of
      Qa          Tb/Ta
       1.049 *    0.295 =      0.309
Qp =      2.443

Total of 2 streams to confluence:
Flow rates before confluence point:
       1.049       2.134
Area of streams before confluence:
        0.570        0.500
Results of confluence:
Total flow rate =      2.443(CFS)
Time of concentration =     5.718 min.
Effective stream area after confluence =      1.070(Ac.)


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Process from Point/Station     1110.000 to Point/Station     1007.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  1047.230(Ft.)
Downstream point/station elevation =  1044.650(Ft.)
Pipe length  =   120.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     2.443(CFS)
Nearest computed pipe diameter  =     12.00(In.)
```

```
Calculated individual pipe flow  =     2.443(CFS)
Normal flow depth in pipe =    5.77(In.)
Flow top width inside pipe =   11.99(In.)
Critical Depth =    8.03(In.)
Pipe flow velocity =      6.54(Ft/s)
Travel time through pipe =    0.31 min.
Time of concentration (TC) =     6.02 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1007.000 to Point/Station     1007.000
**** CONFLUENCE OF MAIN STREAMS ****
________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 2
Stream flow area =      1.070(Ac.)
Runoff from this stream =      2.443(CFS)
Time of concentration =    6.02 min.
Rainfall intensity =     4.603(In/Hr)
Program is now starting with Main Stream No. 3


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1005.000 to Point/Station     1006.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
Initial area flow distance =   103.000(Ft.)
Top (of initial area) elevation =  1056.000(Ft.)
Bottom (of initial area) elevation =  1055.000(Ft.)
Difference in elevation =     1.000(Ft.)
Slope =    0.00971  s(percent)=       0.97
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Warning: TC computed to be less than 5 min.; program is assuming the
time of concentration is 5 minutes.
Initial area time of concentration =    5.000 min.
Rainfall intensity =      5.099(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.891
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.272(CFS)
Total initial stream area =        0.060(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1006.000 to Point/Station     1007.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Estimated mean flow rate at midpoint of channel =      0.779(CFS)
Depth of flow =   0.106(Ft.), Average velocity =   1.328(Ft/s)
    ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
    1              0.00              0.25
    2             26.00              0.00
    3             26.50              0.50
Manning's 'N' friction factor =   0.013
------------------------------------------------------------------
Sub-Channel flow  =      0.779(CFS)
  '     '    flow top width =     11.096(Ft.)
  '     '    velocity=    1.328(Ft/s)
  '     '    area =      0.586(Sq.Ft)
  '     '    Froude number =     1.018
```

```
Upstream point elevation =  1055.000(Ft.)
Downstream point elevation =  1052.200(Ft.)
Flow length =   409.000(Ft.)
Travel time  =    5.13 min.
Time of concentration =   10.13 min.
Depth of flow =   0.106(Ft.)
Average velocity =   1.328(Ft/s)
Total irregular channel flow =     0.779(CFS)
Irregular channel normal depth above invert elev. =   0.106(Ft.)
Average velocity of channel(s) =   1.328(Ft/s)
 Adding area flow to channel
COMMERCIAL subarea type
Runoff Coefficient = 0.887
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Rainfall intensity =      3.458(In/Hr) for a   100.0 year storm
Subarea runoff =      0.950(CFS) for      0.310(Ac.)
Total runoff =      1.223(CFS)  Total area =       0.370(Ac.)
Depth of flow =   0.125(Ft.), Average velocity =   1.487(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1007.000 to Point/Station     1007.000
**** CONFLUENCE OF MAIN STREAMS ****
________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 3
Stream flow area =      0.370(Ac.)
Runoff from this stream =      1.223(CFS)
Time of concentration =   10.13 min.
Rainfall intensity =     3.458(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)


1       25.434      7.78             3.998
2        2.443      6.02             4.603
3        1.223     10.13             3.458
Largest stream flow has longer or shorter time of concentration
Qp =     25.434 + sum of
      Qb         Ia/Ib
       2.443 *    0.869 =      2.122
      Qa          Tb/Ta
       1.223 *    0.768 =      0.939
Qp =     28.495

Total of 3 main streams to confluence:
Flow rates before confluence point:
      25.434       2.443       1.223
Area of streams before confluence:
       10.480        1.070        0.370


Results of confluence:
Total flow rate =     28.495(CFS)
Time of concentration =     7.781 min.
Effective stream area after confluence  =     11.920(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1202.000 to Point/Station     1007.000
**** SUBAREA FLOW ADDITION ****
```

```
553
554       ----------------------------------------------------------------------
555       COMMERCIAL subarea type
556       Runoff Coefficient = 0.888
557       Decimal fraction soil group A = 0.000
558       Decimal fraction soil group B = 0.000
559       Decimal fraction soil group C = 1.000
560       Decimal fraction soil group D = 0.000
561       RI index for soil(AMC 2)  =  69.00
562       Pervious area fraction =  0.100; Impervious fraction =  0.900
563       Time of concentration =     7.78 min.
564       Rainfall intensity =      3.998(In/Hr) for a   100.0 year storm
565       Subarea runoff =      0.888(CFS) for      0.250(Ac.)
566       Total runoff =     29.383(CFS)  Total area =      12.170(Ac.)
567       End of computations, total study area =           12.17 (Ac.)
568       The following figures may
569       be used for a unit hydrograph study of the same area.
570
571       Area averaged pervious area fraction(Ap) = 0.157
572       Area averaged RI index number =  69.2
573
574
```

```
1
2               Riverside County Rational Hydrology Program
3
4       CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
5           Rational Hydrology Study        Date: 05/19/22  File:POST1200.out
6       ------------------------------------------------------------------------
7       POST1200
8
9
10
11      ------------------------------------------------------------------------
12       *********   Hydrology Study Control Information **********
13
14       English (in-lb) Units used in input data file
15
16      ------------------------------------------------------------------------
17
18
19      Program License Serial Number 6332
20
21      ------------------------------------------------------------------------
22      Rational Method Hydrology Program based on
23      Riverside County Flood Control & Water Conservation District
24      1978 hydrology manual
25
26      Storm event (year) =  100.00 Antecedent Moisture Condition = 2
27
28      Standard intensity-duration curves data (Plate D-4.1)
29      For the [ Murrieta,Tmc,Rnch CaNorco ] area used.
30      10 year storm 10 minute intensity =  2.360(In/Hr)
31      10 year storm 60 minute intensity =  0.880(In/Hr)
32      100 year storm 10 minute intensity =  3.480(In/Hr)
33      100 year storm 60 minute intensity =  1.300(In/Hr)
34
35      Storm event year = 100.0
36      Calculated rainfall intensity data:
37      1 hour intensity =  1.300(In/Hr)
38      Slope of intensity duration curve = 0.5500
39
40
41
42
43
44      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
45      Process from Point/Station     1204.000 to Point/Station     1205.000
46      **** INITIAL AREA EVALUATION ****
47      ________________________________________________________________________
48      Initial area flow distance =   100.000(Ft.)
49      Top (of initial area) elevation =  1055.000(Ft.)
50      Bottom (of initial area) elevation =  1054.000(Ft.)
51      Difference in elevation =     1.000(Ft.)
52      Slope =    0.01000  s(percent)=       1.00
53      TC = k(0.300)*[(length^3)/(elevation change)]^0.2
54      Warning: TC computed to be less than 5 min.; program is assuming the
55      time of concentration is 5 minutes.
56      Initial area time of concentration =    5.000 min.
57      Rainfall intensity =      5.099(In/Hr) for a   100.0 year storm
58      COMMERCIAL subarea type
59      Runoff Coefficient = 0.891
60      Decimal fraction soil group A = 0.000
61      Decimal fraction soil group B = 0.000
62      Decimal fraction soil group C = 1.000
63      Decimal fraction soil group D = 0.000
64      RI index for soil(AMC 2)   =  69.00
65      Pervious area fraction =  0.100; Impervious fraction =  0.900
66      Initial subarea runoff =      0.227(CFS)
67      Total initial stream area =        0.050(Ac.)
68      Pervious area fraction = 0.100
69
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1205.000 to Point/Station     1206.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =      6.645(CFS)
Depth of flow =   0.198(Ft.), Average velocity =   3.237(Ft/s)
    ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
    1              0.00              0.25
    2             26.00              0.00
    3             26.50              0.50
Manning's 'N' friction factor =   0.013
------------------------------------------------------------------
Sub-Channel flow  =      6.645(CFS)
  '     '    flow top width =     20.764(Ft.)
  '     '    velocity=    3.237(Ft/s)
  '     '    area =      2.053(Sq.Ft)
  '     '    Froude number =     1.814

Upstream point elevation =  1054.000(Ft.)
Downstream point elevation =  1050.950(Ft.)
Flow length =   173.000(Ft.)
Travel time  =    0.89 min.
Time of concentration =    5.89 min.
Depth of flow =   0.198(Ft.)
Average velocity =   3.237(Ft/s)
Total irregular channel flow =     6.645(CFS)
Irregular channel normal depth above invert elev. =   0.198(Ft.)
Average velocity of channel(s) =   3.237(Ft/s)
 Adding area flow to channel
APARTMENT subarea type
Runoff Coefficient = 0.879
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.200; Impervious fraction =  0.800
Rainfall intensity =      4.659(In/Hr) for a   100.0 year storm
Subarea runoff =     12.745(CFS) for      3.110(Ac.)
Total runoff =     12.972(CFS)  Total area =       3.160(Ac.)
Depth of flow =   0.253(Ft.), Average velocity =   3.851(Ft/s)
!!Warning: Water is above left or right bank elevations


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1206.000 to Point/Station     1203.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
------------------------------------------------------------------------
Upstream point/station elevation =  1050.950(Ft.)
Downstream point/station elevation =  1050.790(Ft.)
Pipe length  =    32.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    12.972(CFS)
Given pipe size =     12.00(In.)
NOTE: Normal flow is pressure flow in user selected pipe size.
The approximate hydraulic grade line above the pipe invert is
    10.434(Ft.)  at the headworks or inlet of the pipe(s)
 Pipe friction loss =      4.240(Ft.)
 Minor friction loss =      6.353(Ft.)  K-factor =   1.50
Pipe flow velocity =     16.52(Ft/s)
Travel time through pipe =    0.03 min.
Time of concentration (TC) =     5.92 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1203.000 to Point/Station     1203.000
```

```
**** CONFLUENCE OF MINOR STREAMS ****

____________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      3.160(Ac.)
Runoff from this stream =      12.972(CFS)
Time of concentration =    5.92 min.
Rainfall intensity =     4.645(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1201.000 to Point/Station     1202.000
**** INITIAL AREA EVALUATION ****

____________________________________________________________________
Initial area flow distance =   174.000(Ft.)
Top (of initial area) elevation =  1057.360(Ft.)
Bottom (of initial area) elevation =  1057.350(Ft.)
Difference in elevation =     0.010(Ft.)
Slope =    0.00006  s(percent)=       0.01
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   16.651 min.
Rainfall intensity =      2.631(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.883
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.604(CFS)
Total initial stream area =        0.260(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1202.000 to Point/Station     1203.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****

____________________________________________________________________
Upstream point/station elevation =  1048.130(Ft.)
Downstream point/station elevation =  1045.220(Ft.)
Pipe length  =   191.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     0.604(CFS)
Given pipe size =     24.00(In.)
Calculated individual pipe flow  =     0.604(CFS)
Normal flow depth in pipe =    2.44(In.)
Flow top width inside pipe =   14.51(In.)
Critical Depth =    3.19(In.)
Pipe flow velocity =      3.61(Ft/s)
Travel time through pipe =    0.88 min.
Time of concentration (TC) =    17.53 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1203.000 to Point/Station     1203.000
**** CONFLUENCE OF MINOR STREAMS ****

____________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      0.260(Ac.)
Runoff from this stream =      0.604(CFS)
Time of concentration =   17.53 min.
Rainfall intensity =     2.557(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                (In/Hr)


1       12.972      5.92                 4.645
2        0.604     17.53                 2.557
```

```
      Largest stream flow has longer or shorter time of concentration
      Qp =     12.972 + sum of
            Qa          Tb/Ta
             0.604 *    0.338 =      0.204
      Qp =     13.176

      Total of 2 streams to confluence:
      Flow rates before confluence point:
            12.972       0.604
      Area of streams before confluence:
              3.160        0.260
      Results of confluence:
      Total flow rate =     13.176(CFS)
      Time of concentration =     5.923 min.
      Effective stream area after confluence =      3.420(Ac.)


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
      Process from Point/Station     1203.000 to Point/Station     1203.000
      **** CONFLUENCE OF MAIN STREAMS ****

      ________________________________________________________________________
      The following data inside Main Stream is listed:
      In Main Stream number: 1
      Stream flow area =      3.420(Ac.)
      Runoff from this stream =     13.176(CFS)
      Time of concentration =    5.92 min.
      Rainfall intensity =     4.645(In/Hr)
      Program is now starting with Main Stream No. 2


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
      Process from Point/Station     1401.000 to Point/Station     1402.000
      **** INITIAL AREA EVALUATION ****

      ________________________________________________________________________
      Initial area flow distance =   100.000(Ft.)
      Top (of initial area) elevation =  1057.000(Ft.)
      Bottom (of initial area) elevation =  1056.000(Ft.)
      Difference in elevation =     1.000(Ft.)
      Slope =    0.01000  s(percent)=       1.00
      TC = k(0.336)*[(length^3)/(elevation change)]^0.2
      Initial area time of concentration =    5.325 min.
      Rainfall intensity =      4.925(In/Hr) for a   100.0 year storm
      MOBILE HOME PARK subarea type
      Runoff Coefficient = 0.876
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 2)  =  69.00
      Pervious area fraction =  0.250; Impervious fraction =  0.750
      Initial subarea runoff =      0.518(CFS)
      Total initial stream area =        0.120(Ac.)
      Pervious area fraction = 0.250


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
      Process from Point/Station     1402.000 to Point/Station     1403.000
      **** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

      ________________________________________________________________________
      Estimated mean flow rate at midpoint of channel =      7.997(CFS)
      Depth of flow =   0.359(Ft.), Average velocity =   4.963(Ft/s)
          ******* Irregular Channel Data ***********
      ------------------------------------------------------------------
      Information entered for subchannel number 1 :
      Point number      'X' coordinate     'Y' coordinate
          1              0.00              2.00
          2             25.00              0.00
          3             50.00              2.00
      Manning's 'N' friction factor =   0.013
```

```
------------------------------------------------------------------
Sub-Channel flow  =      7.997(CFS)
  '     '    flow top width =      8.976(Ft.)
  '     '    velocity=    4.963(Ft/s)
  '     '    area =      1.611(Sq.Ft)
  '     '    Froude number =     2.064

Upstream point elevation =  1056.000(Ft.)
Downstream point elevation =  1054.000(Ft.)
Flow length =   107.000(Ft.)
Travel time  =    0.36 min.
Time of concentration =    5.68 min.
Depth of flow =   0.359(Ft.)
Average velocity =   4.963(Ft/s)
Total irregular channel flow =     7.997(CFS)
Irregular channel normal depth above invert elev. =   0.359(Ft.)
Average velocity of channel(s) =   4.963(Ft/s)
 Adding area flow to channel
COMMERCIAL subarea type
Runoff Coefficient = 0.890
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Rainfall intensity =      4.752(In/Hr) for a   100.0 year storm
Subarea runoff =     14.885(CFS) for      3.520(Ac.)
Total runoff =     15.402(CFS)  Total area =       3.640(Ac.)
Depth of flow =   0.459(Ft.), Average velocity =   5.846(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1403.000 to Point/Station     1404.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****

____________________________________________________________________________
Upstream point/station elevation =  1049.000(Ft.)
Downstream point/station elevation =  1046.000(Ft.)
Pipe length  =   544.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    15.402(CFS)
Given pipe size =     24.00(In.)
Calculated individual pipe flow  =    15.402(CFS)
Normal flow depth in pipe =   18.09(In.)
Flow top width inside pipe =   20.68(In.)
Critical Depth =   16.97(In.)
Pipe flow velocity =      6.07(Ft/s)
Travel time through pipe =    1.49 min.
Time of concentration (TC) =     7.18 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1404.000 to Point/Station     1306.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****

____________________________________________________________________________
Upstream point/station elevation =  1046.510(Ft.)
Downstream point/station elevation =  1045.830(Ft.)
Pipe length  =   134.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    15.402(CFS)
Given pipe size =     24.00(In.)
Calculated individual pipe flow  =    15.402(CFS)
Normal flow depth in pipe =   18.80(In.)
Flow top width inside pipe =   19.78(In.)
Critical Depth =   16.97(In.)
Pipe flow velocity =      5.84(Ft/s)
Travel time through pipe =    0.38 min.
Time of concentration (TC) =     7.56 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
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```
Process from Point/Station     1203.000 to Point/Station     1203.000
**** CONFLUENCE OF MAIN STREAMS ****

____________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 2
Stream flow area =      3.640(Ac.)
Runoff from this stream =     15.402(CFS)
Time of concentration =    7.56 min.
Rainfall intensity =     4.061(In/Hr)
Program is now starting with Main Stream No. 3


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1501.000 to Point/Station     1502.000
**** INITIAL AREA EVALUATION ****

____________________________________________________________________________
Initial area flow distance =   101.000(Ft.)
Top (of initial area) elevation =  1057.000(Ft.)
Bottom (of initial area) elevation =  1056.000(Ft.)
Difference in elevation =     1.000(Ft.)
Slope =    0.00990  s(percent)=       0.99
TC = k(0.370)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    5.899 min.
Rainfall intensity =      4.656(In/Hr) for a   100.0 year storm
CONDOMINIUM subarea type
Runoff Coefficient = 0.864
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.350; Impervious fraction =  0.650
Initial subarea runoff =      0.966(CFS)
Total initial stream area =        0.240(Ac.)
Pervious area fraction = 0.350


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1502.000 to Point/Station     1503.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

____________________________________________________________________________
Estimated mean flow rate at midpoint of channel =      1.512(CFS)
Depth of flow =   0.113(Ft.), Average velocity =   2.204(Ft/s)
    ******* Irregular Channel Data ***********
----------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
    1              0.00              0.25
    2             26.00              0.00
    3             28.00              0.50
Manning's 'N' friction factor =   0.013
----------------------------------------------------------------
Sub-Channel flow  =      1.512(CFS)
  '     '    flow top width =     12.172(Ft.)
  '     '    velocity=    2.204(Ft/s)
  '     '    area =      0.686(Sq.Ft)
  '     '    Froude number =     1.636

Upstream point elevation =  1056.000(Ft.)
Downstream point elevation =  1051.950(Ft.)
Flow length =   235.000(Ft.)
Travel time  =    1.78 min.
Time of concentration =    7.68 min.
Depth of flow =   0.113(Ft.)
Average velocity =   2.204(Ft/s)
Total irregular channel flow =     1.512(CFS)
Irregular channel normal depth above invert elev. =   0.113(Ft.)
Average velocity of channel(s) =   2.204(Ft/s)
 Adding area flow to channel
```

```
MOBILE HOME PARK subarea type
Runoff Coefficient = 0.871
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.250; Impervious fraction =  0.750
Rainfall intensity =      4.028(In/Hr) for a   100.0 year storm
Subarea runoff =      1.017(CFS) for      0.290(Ac.)
Total runoff =      1.983(CFS)  Total area =       0.530(Ac.)
Depth of flow =   0.125(Ft.), Average velocity =   2.359(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1503.000 to Point/Station     1503.000
**** SUBAREA FLOW ADDITION ****

------------------------------------------------------------------------------
APARTMENT subarea type
Runoff Coefficient = 0.877
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.200; Impervious fraction =  0.800
Time of concentration =     7.68 min.
Rainfall intensity =      4.028(In/Hr) for a   100.0 year storm
Subarea runoff =      0.742(CFS) for      0.210(Ac.)
Total runoff =      2.724(CFS)  Total area =       0.740(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1503.000 to Point/Station     1306.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****

------------------------------------------------------------------------------
Upstream point/station elevation =  1047.200(Ft.)
Downstream point/station elevation =  1045.830(Ft.)
Pipe length  =    93.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     2.724(CFS)
Given pipe size =     12.00(In.)
Calculated individual pipe flow  =     2.724(CFS)
Normal flow depth in pipe =    6.91(In.)
Flow top width inside pipe =   11.86(In.)
Critical Depth =    8.48(In.)
Pipe flow velocity =      5.82(Ft/s)
Travel time through pipe =    0.27 min.
Time of concentration (TC) =     7.94 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1203.000 to Point/Station     1203.000
**** CONFLUENCE OF MAIN STREAMS ****

------------------------------------------------------------------------------
The following data inside Main Stream is listed:
In Main Stream number: 3
Stream flow area =      0.740(Ac.)
Runoff from this stream =      2.724(CFS)
Time of concentration =    7.94 min.
Rainfall intensity =     3.953(In/Hr)
Program is now starting with Main Stream No. 4


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1301.000 to Point/Station     1302.000
**** INITIAL AREA EVALUATION ****

------------------------------------------------------------------------------
Initial area flow distance =   104.000(Ft.)
Top (of initial area) elevation =  1057.200(Ft.)
```

```
Bottom (of initial area) elevation =  1056.280(Ft.)
Difference in elevation =     0.920(Ft.)
Slope =    0.00885  s(percent)=       0.88
TC = k(0.420)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    6.930 min.
Rainfall intensity =      4.261(In/Hr) for a   100.0 year storm
SINGLE FAMILY (1/2 Acre Lot)
Runoff Coefficient = 0.833
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.600; Impervious fraction =  0.400
Initial subarea runoff =      0.462(CFS)
Total initial stream area =        0.130(Ac.)
Pervious area fraction = 0.600


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1302.000 to Point/Station     1303.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Estimated mean flow rate at midpoint of channel =      2.557(CFS)
Depth of flow =   0.300(Ft.), Average velocity =   2.845(Ft/s)
    ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
    1              0.00              1.00
    2             10.00              0.00
    3             20.00              1.00
Manning's 'N' friction factor =   0.013
------------------------------------------------------------------
Sub-Channel flow  =      2.557(CFS)
  '     '    flow top width =      5.996(Ft.)
  '     '    velocity=    2.845(Ft/s)
  '     '    area =      0.899(Sq.Ft)
  '     '    Froude number =     1.295

Upstream point elevation =  1056.280(Ft.)
Downstream point elevation =  1055.810(Ft.)
Flow length =    60.000(Ft.)
Travel time  =    0.35 min.
Time of concentration =    7.28 min.
Depth of flow =   0.300(Ft.)
Average velocity =   2.845(Ft/s)
Total irregular channel flow =     2.557(CFS)
Irregular channel normal depth above invert elev. =   0.300(Ft.)
Average velocity of channel(s) =   2.845(Ft/s)
 Adding area flow to channel
MOBILE HOME PARK subarea type
Runoff Coefficient = 0.872
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.250; Impervious fraction =  0.750
Rainfall intensity =      4.147(In/Hr) for a   100.0 year storm
Subarea runoff =      4.265(CFS) for      1.180(Ac.)
Total runoff =      4.727(CFS)  Total area =       1.310(Ac.)
Depth of flow =   0.377(Ft.), Average velocity =   3.318(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1303.000 to Point/Station     1304.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
________________________________________________________________________
```

```
Upstream point/station elevation =  1055.810(Ft.)
Downstream point/station elevation =  1055.640(Ft.)
Pipe length  =    35.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     4.727(CFS)
Given pipe size =     15.00(In.)
Calculated individual pipe flow  =     4.727(CFS)
Normal flow depth in pipe =   15.00(In.)
Flow top width inside pipe =    0.00(In.)
Critical Depth =   10.58(In.)
Pipe flow velocity =      3.67(Ft/s)
Travel time through pipe =    0.16 min.
Time of concentration (TC) =     7.44 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1304.000 to Point/Station     1304.000
**** CONFLUENCE OF MINOR STREAMS ****
____________________________________________________________________________
Along Main Stream number: 4 in normal stream number 1
Stream flow area =      1.310(Ac.)
Runoff from this stream =      4.727(CFS)
Time of concentration =    7.44 min.
Rainfall intensity =     4.098(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      912.000 to Point/Station     1309.000
**** INITIAL AREA EVALUATION ****
____________________________________________________________________________
Initial area flow distance =   107.000(Ft.)
Top (of initial area) elevation =  1057.400(Ft.)
Bottom (of initial area) elevation =  1057.390(Ft.)
Difference in elevation =     0.010(Ft.)
Slope =    0.00009  s(percent)=       0.01
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   12.438 min.
Rainfall intensity =      3.089(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.885
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      1.067(CFS)
Total initial stream area =        0.390(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1309.000 to Point/Station     1302.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
____________________________________________________________________________
Upstream point/station elevation =  1057.400(Ft.)
Downstream point/station elevation =  1056.280(Ft.)
Pipe length  =    94.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     1.067(CFS)
Given pipe size =     12.00(In.)
Calculated individual pipe flow  =     1.067(CFS)
Normal flow depth in pipe =    4.29(In.)
Flow top width inside pipe =   11.51(In.)
Critical Depth =    5.21(In.)
Pipe flow velocity =      4.22(Ft/s)
Travel time through pipe =    0.37 min.
Time of concentration (TC) =    12.81 min.


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```

```
Process from Point/Station     1302.000 to Point/Station     1304.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
------------------------------------------------------------------------
Upstream point/station elevation =  1056.280(Ft.)
Downstream point/station elevation =  1055.640(Ft.)
Pipe length  =    39.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     1.067(CFS)
Given pipe size =     15.00(In.)
Calculated individual pipe flow  =     1.067(CFS)
Normal flow depth in pipe =    3.64(In.)
Flow top width inside pipe =   12.86(In.)
Critical Depth =    4.88(In.)
Pipe flow velocity =      4.64(Ft/s)
Travel time through pipe =    0.14 min.
Time of concentration (TC) =    12.95 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1304.000 to Point/Station     1304.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------
Along Main Stream number: 4 in normal stream number 2
Stream flow area =      0.390(Ac.)
Runoff from this stream =      1.067(CFS)
Time of concentration =   12.95 min.
Rainfall intensity =     3.021(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)


1        4.727      7.44                  4.098
2        1.067     12.95                  3.021
Largest stream flow has longer or shorter time of concentration
Qp =      4.727 + sum of
      Qa          Tb/Ta
       1.067 *    0.575 =      0.613
Qp =      5.340

Total of 2 streams to confluence:
Flow rates before confluence point:
       4.727       1.067
Area of streams before confluence:
        1.310        0.390
Results of confluence:
Total flow rate =      5.340(CFS)
Time of concentration =     7.440 min.
Effective stream area after confluence =      1.700(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1304.000 to Point/Station     1305.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
------------------------------------------------------------------------
Upstream point/station elevation =  1056.470(Ft.)
Downstream point/station elevation =  1055.800(Ft.)
Pipe length  =   192.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     5.340(CFS)
Given pipe size =     18.00(In.)
Calculated individual pipe flow  =     5.340(CFS)
Normal flow depth in pipe =   12.87(In.)
Flow top width inside pipe =   16.25(In.)
Critical Depth =   10.67(In.)
Pipe flow velocity =      3.95(Ft/s)
Travel time through pipe =    0.81 min.
Time of concentration (TC) =     8.25 min.
```

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Process from Point/Station     1305.000 to Point/Station     1305.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------
Along Main Stream number: 4 in normal stream number 1
Stream flow area =      1.700(Ac.)
Runoff from this stream =      5.340(CFS)
Time of concentration =    8.25 min.
Rainfall intensity =     3.871(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      921.000 to Point/Station     1310.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
Initial area flow distance =   165.000(Ft.)
Top (of initial area) elevation =  1057.400(Ft.)
Bottom (of initial area) elevation =  1057.390(Ft.)
Difference in elevation =     0.010(Ft.)
Slope =    0.00006  s(percent)=       0.01
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   16.129 min.
Rainfall intensity =      2.678(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.884
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.970(CFS)
Total initial stream area =        0.410(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1310.000 to Point/Station     1305.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
------------------------------------------------------------------------
Upstream point/station elevation =  1049.460(Ft.)
Downstream point/station elevation =  1049.060(Ft.)
Pipe length  =   108.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     0.970(CFS)
Given pipe size =     12.00(In.)
Calculated individual pipe flow  =     0.970(CFS)
Normal flow depth in pipe =    5.63(In.)
Flow top width inside pipe =   11.98(In.)
Critical Depth =    4.96(In.)
Pipe flow velocity =      2.68(Ft/s)
Travel time through pipe =    0.67 min.
Time of concentration (TC) =    16.80 min.


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Process from Point/Station     1305.000 to Point/Station     1305.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------
Along Main Stream number: 4 in normal stream number 2
Stream flow area =      0.410(Ac.)
Runoff from this stream =      0.970(CFS)
Time of concentration =   16.80 min.
Rainfall intensity =     2.618(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)
```

```
1        5.340      8.25                3.871
2        0.970     16.80                2.618
Largest stream flow has longer or shorter time of concentration
Qp =      5.340 + sum of
      Qa          Tb/Ta
       0.970 *    0.491 =      0.476
Qp =      5.816

Total of 2 streams to confluence:
Flow rates before confluence point:
       5.340       0.970
Area of streams before confluence:
        1.700        0.410
Results of confluence:
Total flow rate =      5.816(CFS)
Time of concentration =     8.250 min.
Effective stream area after confluence =      2.110(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1305.000 to Point/Station     1203.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
________________________________________________________________________
Upstream point/station elevation =  1049.060(Ft.)
Downstream point/station elevation =  1045.220(Ft.)
Pipe length  =   476.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     5.816(CFS)
Given pipe size =     18.00(In.)
Calculated individual pipe flow  =     5.816(CFS)
Normal flow depth in pipe =   10.22(In.)
Flow top width inside pipe =   17.83(In.)
Critical Depth =   11.18(In.)
Pipe flow velocity =      5.62(Ft/s)
Travel time through pipe =    1.41 min.
Time of concentration (TC) =     9.66 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1203.000 to Point/Station     1203.000
**** CONFLUENCE OF MAIN STREAMS ****
________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 4
Stream flow area =      2.110(Ac.)
Runoff from this stream =      5.816(CFS)
Time of concentration =    9.66 min.
Rainfall intensity =     3.549(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)


1       13.176      5.92             4.645
2       15.402      7.56             4.061
3        2.724      7.94             3.953
4        5.816      9.66             3.549
Largest stream flow has longer or shorter time of concentration
Qp =     15.402 + sum of
      Qb         Ia/Ib
      13.176 *    0.874 =     11.519
      Qa          Tb/Ta
       2.724 *    0.952 =      2.594
      Qa          Tb/Ta
       5.816 *    0.783 =      4.551
Qp =     34.066

Total of 4 main streams to confluence:
Flow rates before confluence point:
```

```
          13.176      15.402       2.724       5.816
 Area of streams before confluence:
           3.420       3.640       0.740       2.110


 Results of confluence:
 Total flow rate =     34.066(CFS)
 Time of concentration =     7.562 min.
 Effective stream area after confluence  =      9.910(Ac.)
 End of computations, total study area =            9.91 (Ac.)
 The following figures may
 be used for a unit hydrograph study of the same area.

 Area averaged pervious area fraction(Ap) = 0.170
 Area averaged RI index number =  69.0
```

```
        Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
    Rational Hydrology Study        Date: 05/19/22  File:POST1203.out
--------------------------------------------------------------------------
WEST SIDE



--------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

 English (in-lb) Units used in input data file

--------------------------------------------------------------------------


Program License Serial Number 6332

--------------------------------------------------------------------------
Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) =  100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [ Murrieta,Tmc,Rnch CaNorco ] area used.
10 year storm 10 minute intensity =  2.360(In/Hr)
10 year storm 60 minute intensity =  0.880(In/Hr)
100 year storm 10 minute intensity =  3.480(In/Hr)
100 year storm 60 minute intensity =  1.300(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity =  1.300(In/Hr)
Slope of intensity duration curve = 0.5500




++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1007.000 to Point/Station     1007.000
**** USER DEFINED FLOW INFORMATION AT A POINT ****

__________________________________________________________________________
Rainfall intensity =      3.998(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.888
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
User specified values are as follows:
TC =   7.78 min.  Rain intensity =       4.00(In/Hr)
Total area =        12.17(Ac.)  Total runoff =     29.38(CFS)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1203.000 to Point/Station     1203.000
**** CONFLUENCE OF MINOR STREAMS ****

__________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =     12.170(Ac.)
Runoff from this stream =     29.383(CFS)
Time of concentration =    7.78 min.
```

```
Rainfall intensity =     3.998(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1203.000 to Point/Station     1203.000
**** USER DEFINED FLOW INFORMATION AT A POINT ****

------------------------------------------------------------------------
Rainfall intensity =      4.061(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.888
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)   =  69.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
User specified values are as follows:
TC =   7.56 min.  Rain intensity =       4.06(In/Hr)
Total area =         9.91(Ac.)  Total runoff =     34.07(CFS)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1203.000 to Point/Station     1203.000
**** CONFLUENCE OF MINOR STREAMS ****

------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      9.910(Ac.)
Runoff from this stream =     34.066(CFS)
Time of concentration =    7.56 min.
Rainfall intensity =     4.061(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)


1       29.383      7.78                  3.998
2       34.066      7.56                  4.061
Largest stream flow has longer or shorter time of concentration
Qp =     34.066 + sum of
      Qa          Tb/Ta
      29.383 *    0.972 =     28.560
Qp =     62.626

Total of 2 streams to confluence:
Flow rates before confluence point:
      29.383      34.066
Area of streams before confluence:
       12.170        9.910
Results of confluence:
Total flow rate =     62.626(CFS)
Time of concentration =     7.562 min.
Effective stream area after confluence =     22.080(Ac.)
End of computations, total study area =           22.08 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged RI index number =  69.0
```

POST-DEVELOPMENT

Q100 PHASE 1 (APPROVED) CIVIL D

WEST-Q100

```
1
2               Riverside County Rational Hydrology Program
3
4       CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
5           Rational Hydrology Study        Date: 05/16/22  File:POST100.out
6       ------------------------------------------------------------------------
7       POST100
8
9
10
11      ------------------------------------------------------------------------
12       *********   Hydrology Study Control Information **********
13
14       English (in-lb) Units used in input data file
15
16      ------------------------------------------------------------------------
17
18
19      Program License Serial Number 6332
20
21      ------------------------------------------------------------------------
22      Rational Method Hydrology Program based on
23      Riverside County Flood Control & Water Conservation District
24      1978 hydrology manual
25
26      Storm event (year) =  100.00 Antecedent Moisture Condition = 2
27
28      Standard intensity-duration curves data (Plate D-4.1)
29      For the [ Riverside ] area used.
30      10 year storm 10 minute intensity =  1.880(In/Hr)
31      10 year storm 60 minute intensity =  0.700(In/Hr)
32      100 year storm 10 minute intensity =  2.680(In/Hr)
33      100 year storm 60 minute intensity =  1.000(In/Hr)
34
35      Storm event year = 100.0
36      Calculated rainfall intensity data:
37      1 hour intensity =  1.000(In/Hr)
38      Slope of intensity duration curve = 0.5500
39
40
41
42
43
44      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
45      Process from Point/Station      101.000 to Point/Station      102.000
46      **** INITIAL AREA EVALUATION ****
47      ________________________________________________________________________
48      Initial area flow distance =   100.000(Ft.)
49      Top (of initial area) elevation =  1054.910(Ft.)
50      Bottom (of initial area) elevation =  1050.720(Ft.)
51      Difference in elevation =     4.190(Ft.)
52      Slope =    0.04190  s(percent)=       4.19
53      TC = k(0.300)*[(length^3)/(elevation change)]^0.2
54      Warning: TC computed to be less than 5 min.; program is assuming the
55      time of concentration is 5 minutes.
56      Initial area time of concentration =    5.000 min.
57      Rainfall intensity =      3.922(In/Hr) for a   100.0 year storm
58      COMMERCIAL subarea type
59      Runoff Coefficient = 0.888
60      Decimal fraction soil group A = 0.000
61      Decimal fraction soil group B = 0.000
62      Decimal fraction soil group C = 1.000
63      Decimal fraction soil group D = 0.000
64      RI index for soil(AMC 2)   =  69.00
65      Pervious area fraction =  0.100; Impervious fraction =  0.900
66      Initial subarea runoff =      0.348(CFS)
67      Total initial stream area =        0.100(Ac.)
68      Pervious area fraction = 0.100
69
```

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++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      102.000 to Point/Station      103.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Estimated mean flow rate at midpoint of channel =      2.020(CFS)
Depth of flow =   0.206(Ft.), Average velocity =   4.763(Ft/s)
    ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
    1              0.00              1.00
    2             10.00              0.00
    3             20.00              1.00
Manning's 'N' friction factor =   0.016
------------------------------------------------------------------
Sub-Channel flow  =      2.020(CFS)
  '     '    flow top width =      4.119(Ft.)
  '     '    velocity=    4.763(Ft/s)
  '     '    area =      0.424(Sq.Ft)
  '     '    Froude number =     2.615

Upstream point elevation =  1057.980(Ft.)
Downstream point elevation =  1047.670(Ft.)
Flow length =   188.000(Ft.)
Travel time  =    0.66 min.
Time of concentration =    5.66 min.
Depth of flow =   0.206(Ft.)
Average velocity =   4.763(Ft/s)
Total irregular channel flow =     2.020(CFS)
Irregular channel normal depth above invert elev. =   0.206(Ft.)
Average velocity of channel(s) =   4.763(Ft/s)
 Adding area flow to channel
COMMERCIAL subarea type
Runoff Coefficient = 0.887
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Rainfall intensity =      3.665(In/Hr) for a   100.0 year storm
Subarea runoff =      3.284(CFS) for      1.010(Ac.)
Total runoff =      3.633(CFS)  Total area =       1.110(Ac.)
Depth of flow =   0.257(Ft.), Average velocity =   5.515(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      103.000 to Point/Station      104.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
________________________________________________________________________
Upstream point/station elevation =  2047.670(Ft.)
Downstream point/station elevation =  1047.150(Ft.)
Pipe length  =   171.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     3.633(CFS)
Given pipe size =     12.00(In.)
Calculated individual pipe flow  =     3.633(CFS)
Normal flow depth in pipe =    1.68(In.)
Flow top width inside pipe =    8.33(In.)
Critical Depth =    9.76(In.)
Pipe flow velocity =     54.35(Ft/s)
Travel time through pipe =    0.05 min.
Time of concentration (TC) =     5.71 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.000 to Point/Station      104.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
```

```
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      1.110(Ac.)
Runoff from this stream =      3.633(CFS)
Time of concentration =    5.71 min.
Rainfall intensity =     3.646(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      201.000 to Point/Station      202.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
Initial area flow distance =   100.000(Ft.)
Top (of initial area) elevation =  1055.100(Ft.)
Bottom (of initial area) elevation =  1048.460(Ft.)
Difference in elevation =     6.640(Ft.)
Slope =    0.06640  s(percent)=       6.64
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Warning: TC computed to be less than 5 min.; program is assuming the
time of concentration is 5 minutes.
Initial area time of concentration =    5.000 min.
Rainfall intensity =      3.922(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.888
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)   =  69.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.279(CFS)
Total initial stream area =        0.080(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      202.000 to Point/Station      104.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Estimated mean flow rate at midpoint of channel =      2.494(CFS)
Depth of flow =   0.335(Ft.), Average velocity =   2.222(Ft/s)
    ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
    1              0.00              1.00
    2             10.00              0.00
    3             20.00              1.00
Manning's 'N' friction factor =   0.016
------------------------------------------------------------------
Sub-Channel flow  =      2.494(CFS)
  '     '    flow top width =      6.701(Ft.)
  '     '    velocity=    2.222(Ft/s)
  '     '    area =      1.123(Sq.Ft)
  '     '    Froude number =     0.957

Upstream point elevation =  1048.460(Ft.)
Downstream point elevation =  1047.150(Ft.)
Flow length =   210.000(Ft.)
Travel time  =    1.58 min.
Time of concentration =    6.58 min.
Depth of flow =   0.335(Ft.)
Average velocity =   2.222(Ft/s)
Total irregular channel flow =     2.494(CFS)
Irregular channel normal depth above invert elev. =   0.335(Ft.)
Average velocity of channel(s) =   2.222(Ft/s)
 Adding area flow to channel
COMMERCIAL subarea type
Runoff Coefficient = 0.886
Decimal fraction soil group A = 0.000
```

```
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Rainfall intensity =      3.374(In/Hr) for a   100.0 year storm
Subarea runoff =      4.337(CFS) for      1.450(Ac.)
Total runoff =      4.615(CFS)  Total area =       1.530(Ac.)
Depth of flow =   0.422(Ft.), Average velocity =   2.591(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.000 to Point/Station      104.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      1.530(Ac.)
Runoff from this stream =      4.615(CFS)
Time of concentration =    6.58 min.
Rainfall intensity =     3.374(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                (In/Hr)


1        3.633      5.71                3.646
2        4.615      6.58                3.374
Largest stream flow has longer time of concentration
Qp =      4.615 + sum of
      Qb          Ia/Ib
       3.633 *    0.925 =      3.361
Qp =      7.977

Total of 2 streams to confluence:
Flow rates before confluence point:
       3.633       4.615
Area of streams before confluence:
        1.110        1.530
Results of confluence:
Total flow rate =      7.977(CFS)
Time of concentration =     6.575 min.
Effective stream area after confluence =      2.640(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.000 to Point/Station      105.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
________________________________________________________________________
Upstream point/station elevation =  1047.150(Ft.)
Downstream point/station elevation =  1046.960(Ft.)
Pipe length  =   192.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     7.977(CFS)
Given pipe size =     12.00(In.)
NOTE: Normal flow is pressure flow in user selected pipe size.
The approximate hydraulic grade line above the pipe invert is
    11.834(Ft.)  at the headworks or inlet of the pipe(s)
 Pipe friction loss =      9.621(Ft.)
 Minor friction loss =      2.403(Ft.)  K-factor =   1.50
Pipe flow velocity =     10.16(Ft/s)
Travel time through pipe =    0.32 min.
Time of concentration (TC) =     6.89 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.000 to Point/Station      105.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
```

```
 Stream flow area =      2.640(Ac.)
 Runoff from this stream =      7.977(CFS)
 Time of concentration =    6.89 min.
 Rainfall intensity =     3.288(In/Hr)


 ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 Process from Point/Station      301.000 to Point/Station      302.000
 **** INITIAL AREA EVALUATION ****
 ----------------------------------------------------------------------
 Initial area flow distance =    98.000(Ft.)
 Top (of initial area) elevation =  1056.360(Ft.)
 Bottom (of initial area) elevation =  1055.580(Ft.)
 Difference in elevation =     0.780(Ft.)
 Slope =    0.00796  s(percent)=       0.80
 TC = k(0.300)*[(length^3)/(elevation change)]^0.2
 Warning: TC computed to be less than 5 min.; program is assuming the
 time of concentration is 5 minutes.
 Initial area time of concentration =    5.000 min.
 Rainfall intensity =      3.922(In/Hr) for a   100.0 year storm
 COMMERCIAL subarea type
 Runoff Coefficient = 0.888
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 0.000
 Decimal fraction soil group C = 1.000
 Decimal fraction soil group D = 0.000
 RI index for soil(AMC 2)   =  69.00
 Pervious area fraction =  0.100; Impervious fraction =  0.900
 Initial subarea runoff =      0.453(CFS)
 Total initial stream area =        0.130(Ac.)
 Pervious area fraction = 0.100


 ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 Process from Point/Station      302.000 to Point/Station      105.000
 **** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
 ----------------------------------------------------------------------
 Estimated mean flow rate at midpoint of channel =      2.667(CFS)
 Depth of flow =   0.257(Ft.), Average velocity =   4.047(Ft/s)
     ******* Irregular Channel Data ***********
 ------------------------------------------------------------------
 Information entered for subchannel number 1 :
 Point number      'X' coordinate     'Y' coordinate
     1              0.00              1.00
     2             10.00              0.00
     3             20.00              1.00
 Manning's 'N' friction factor =   0.016
 ------------------------------------------------------------------
 Sub-Channel flow  =      2.667(CFS)
   '     '    flow top width =      5.134(Ft.)
   '     '    velocity=    4.047(Ft/s)
   '     '    area =      0.659(Sq.Ft)
   '     '    Froude number =     1.991

 Upstream point elevation =  1055.580(Ft.)
 Downstream point elevation =  1046.960(Ft.)
 Flow length =   292.000(Ft.)
 Travel time  =    1.20 min.
 Time of concentration =    6.20 min.
 Depth of flow =   0.257(Ft.)
 Average velocity =   4.047(Ft/s)
 Total irregular channel flow =     2.667(CFS)
 Irregular channel normal depth above invert elev. =   0.257(Ft.)
 Average velocity of channel(s) =   4.047(Ft/s)
  Adding area flow to channel
 COMMERCIAL subarea type
 Runoff Coefficient = 0.887
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 0.000
```

```
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Rainfall intensity =      3.484(In/Hr) for a   100.0 year storm
Subarea runoff =      4.356(CFS) for      1.410(Ac.)
Total runoff =      4.809(CFS)  Total area =       1.540(Ac.)
Depth of flow =   0.320(Ft.), Average velocity =   4.690(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.000 to Point/Station      105.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      1.540(Ac.)
Runoff from this stream =      4.809(CFS)
Time of concentration =    6.20 min.
Rainfall intensity =     3.484(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)


1        7.977      6.89                 3.288
2        4.809      6.20                 3.484
Largest stream flow has longer time of concentration
Qp =      7.977 + sum of
      Qb          Ia/Ib
       4.809 *    0.944 =      4.539
Qp =     12.516

Total of 2 streams to confluence:
Flow rates before confluence point:
       7.977       4.809
Area of streams before confluence:
        2.640        1.540
Results of confluence:
Total flow rate =     12.516(CFS)
Time of concentration =     6.890 min.
Effective stream area after confluence =      4.180(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.000 to Point/Station      106.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
________________________________________________________________________
Upstream point/station elevation =  1046.960(Ft.)
Downstream point/station elevation =  1046.860(Ft.)
Pipe length  =    40.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    12.516(CFS)
Given pipe size =     36.00(In.)
Calculated individual pipe flow  =    12.516(CFS)
Normal flow depth in pipe =   15.28(In.)
Flow top width inside pipe =   35.59(In.)
Critical Depth =   13.47(In.)
Pipe flow velocity =      4.38(Ft/s)
Travel time through pipe =    0.15 min.
Time of concentration (TC) =     7.04 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      106.000 to Point/Station      106.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      4.180(Ac.)
Runoff from this stream =     12.516(CFS)
```

```
Time of concentration =    7.04 min.
Rainfall intensity =     3.249(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      504.000 to Point/Station      106.000
**** USER DEFINED FLOW INFORMATION AT A POINT ****

------------------------------------------------------------------------
Rainfall intensity =      3.309(In/Hr) for a   100.0 year storm
MOBILE HOME PARK subarea type
Runoff Coefficient = 0.866
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)   =  69.00
Pervious area fraction =  0.250; Impervious fraction =  0.750
User specified values are as follows:
TC =   6.81 min.  Rain intensity =       3.31(In/Hr)
Total area =         4.92(Ac.)  Total runoff =     14.86(CFS)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      106.000 to Point/Station      106.000
**** CONFLUENCE OF MINOR STREAMS ****

------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      4.920(Ac.)
Runoff from this stream =     14.857(CFS)
Time of concentration =    6.81 min.
Rainfall intensity =     3.309(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                  (In/Hr)


1       12.516      7.04                  3.249
2       14.857      6.81                  3.309
Largest stream flow has longer or shorter time of concentration
Qp =     14.857 + sum of
      Qa          Tb/Ta
      12.516 *    0.967 =     12.102
Qp =     26.959

Total of 2 streams to confluence:
Flow rates before confluence point:
      12.516      14.857
Area of streams before confluence:
        4.180        4.920
Results of confluence:
Total flow rate =     26.959(CFS)
Time of concentration =     6.810 min.
Effective stream area after confluence =      9.100(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      106.000 to Point/Station      107.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****

------------------------------------------------------------------------
Upstream point/station elevation =  1046.000(Ft.)
Downstream point/station elevation =  1045.470(Ft.)
Pipe length  =    27.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    26.959(CFS)
Given pipe size =     18.00(In.)
NOTE: Normal flow is pressure flow in user selected pipe size.
The approximate hydraulic grade line above the pipe invert is
     6.669(Ft.)  at the headworks or inlet of the pipe(s)
 Pipe friction loss =      1.778(Ft.)
```

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 Minor friction loss =      5.421(Ft.)  K-factor =   1.50
Pipe flow velocity =     15.26(Ft/s)
Travel time through pipe =    0.03 min.
Time of concentration (TC) =     6.84 min.


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Process from Point/Station      107.000 to Point/Station      107.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.844
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  86.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Time of concentration =     6.84 min.
Rainfall intensity =      3.302(In/Hr) for a   100.0 year storm
Subarea runoff =      0.781(CFS) for      0.280(Ac.)
Total runoff =     27.740(CFS)  Total area =       9.380(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      107.000 to Point/Station      108.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Depth of flow =   0.841(Ft.), Average velocity =   3.920(Ft/s)
    ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
    1              0.00              1.00
    2             10.00              0.00
    3             20.00              1.00
Manning's 'N' friction factor =   0.030
------------------------------------------------------------------
Sub-Channel flow  =     27.740(CFS)
  '     '    flow top width =     16.825(Ft.)
  '     '    velocity=    3.920(Ft/s)
  '     '    area =      7.077(Sq.Ft)
  '     '    Froude number =     1.065

Upstream point elevation =  1045.470(Ft.)
Downstream point elevation =  1044.190(Ft.)
Flow length =    64.000(Ft.)
Travel time  =    0.27 min.
Time of concentration =    7.11 min.
Depth of flow =   0.841(Ft.)
Average velocity =   3.920(Ft/s)
Total irregular channel flow =    27.740(CFS)
Irregular channel normal depth above invert elev. =   0.841(Ft.)
Average velocity of channel(s) =   3.920(Ft/s)
End of computations, total study area =            9.38 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.206
Area averaged RI index number =  69.5
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        Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
    Rational Hydrology Study        Date: 05/16/22  File:POST600.out
------------------------------------------------------------------------
600 POST



------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

 English (in-lb) Units used in input data file

------------------------------------------------------------------------


Program License Serial Number 6332

------------------------------------------------------------------------
Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) =  100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [ Murrieta,Tmc,Rnch CaNorco ] area used.
10 year storm 10 minute intensity =  2.360(In/Hr)
10 year storm 60 minute intensity =  0.880(In/Hr)
100 year storm 10 minute intensity =  3.480(In/Hr)
100 year storm 60 minute intensity =  1.300(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity =  1.300(In/Hr)
Slope of intensity duration curve = 0.5500




++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      601.000 to Point/Station      602.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
Initial area flow distance =   100.000(Ft.)
Top (of initial area) elevation =  1056.870(Ft.)
Bottom (of initial area) elevation =  1056.860(Ft.)
Difference in elevation =     0.010(Ft.)
Slope =    0.00010  s(percent)=       0.01
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   11.943 min.
Rainfall intensity =      3.159(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.886
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.280(CFS)
Total initial stream area =        0.100(Ac.)
Pervious area fraction = 0.100


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Process from Point/Station      602.000 to Point/Station      603.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =      1.504(CFS)
Depth of flow =   0.345(Ft.), Average velocity =   1.264(Ft/s)
    ******* Irregular Channel Data **********
------------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
    1              0.00              1.00
    2             10.00              0.00
    3             20.00              1.00
Manning's 'N' friction factor =   0.016
------------------------------------------------------------------------
Sub-Channel flow  =      1.504(CFS)
  '     '    flow top width =      6.900(Ft.)
  '     '    velocity=    1.264(Ft/s)
  '     '    area =      1.190(Sq.Ft)
  '     '    Froude number =     0.536

Upstream point elevation =  1056.870(Ft.)
Downstream point elevation =  1056.480(Ft.)
Flow length =   201.000(Ft.)
Travel time  =    2.65 min.
Time of concentration =   14.59 min.
Depth of flow =   0.345(Ft.)
Average velocity =   1.264(Ft/s)
Total irregular channel flow =     1.504(CFS)
Irregular channel normal depth above invert elev. =   0.345(Ft.)
Average velocity of channel(s) =   1.264(Ft/s)
 Adding area flow to channel
COMMERCIAL subarea type
Runoff Coefficient = 0.884
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Rainfall intensity =      2.829(In/Hr) for a   100.0 year storm
Subarea runoff =      2.376(CFS) for      0.950(Ac.)
Total runoff =      2.656(CFS)  Total area =       1.050(Ac.)
Depth of flow =   0.427(Ft.), Average velocity =   1.457(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      603.000 to Point/Station      604.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****

------------------------------------------------------------------------
Upstream point/station elevation =  1056.480(Ft.)
Downstream point/station elevation =  1053.080(Ft.)
Pipe length  =   281.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     2.656(CFS)
Given pipe size =     12.00(In.)
Calculated individual pipe flow  =     2.656(CFS)
Normal flow depth in pipe =    7.24(In.)
Flow top width inside pipe =   11.74(In.)
Critical Depth =    8.38(In.)
Pipe flow velocity =      5.36(Ft/s)
Travel time through pipe =    0.87 min.
Time of concentration (TC) =    15.47 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      604.000 to Point/Station      604.000
**** CONFLUENCE OF MINOR STREAMS ****

------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      1.050(Ac.)
```

```
Runoff from this stream =      2.656(CFS)
Time of concentration =   15.47 min.
Rainfall intensity =     2.740(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      701.000 to Point/Station      702.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
Initial area flow distance =   100.000(Ft.)
Top (of initial area) elevation =  1057.370(Ft.)
Bottom (of initial area) elevation =  1056.100(Ft.)
Difference in elevation =     1.270(Ft.)
Slope =    0.01270  s(percent)=       1.27
TC = k(0.336)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    5.077 min.
Rainfall intensity =      5.057(In/Hr) for a   100.0 year storm
MOBILE HOME PARK subarea type
Runoff Coefficient = 0.876
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.250; Impervious fraction =  0.750
Initial subarea runoff =      0.797(CFS)
Total initial stream area =        0.180(Ac.)
Pervious area fraction = 0.250


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      702.000 to Point/Station      604.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =      3.815(CFS)
Depth of flow =   0.343(Ft.), Average velocity =   3.237(Ft/s)
    ******* Irregular Channel Data ***********
----------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
    1              0.00              1.00
    2             10.00              0.00
    3             20.00              1.00
Manning's 'N' friction factor =   0.016
----------------------------------------------------------------
Sub-Channel flow  =      3.815(CFS)
  '     '    flow top width =      6.866(Ft.)
  '     '    velocity=    3.237(Ft/s)
  '     '    area =      1.179(Sq.Ft)
  '     '    Froude number =     1.377

Upstream point elevation =  1056.100(Ft.)
Downstream point elevation =  1053.050(Ft.)
Flow length =   238.000(Ft.)
Travel time  =    1.23 min.
Time of concentration =    6.30 min.
Depth of flow =   0.343(Ft.)
Average velocity =   3.237(Ft/s)
Total irregular channel flow =     3.815(CFS)
Irregular channel normal depth above invert elev. =   0.343(Ft.)
Average velocity of channel(s) =   3.237(Ft/s)
 Adding area flow to channel
COMMERCIAL subarea type
Runoff Coefficient = 0.889
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
```

```
Pervious area fraction =  0.100; Impervious fraction =  0.900
Rainfall intensity =      4.490(In/Hr) for a   100.0 year storm
Subarea runoff =      5.950(CFS) for      1.490(Ac.)
Total runoff =      6.747(CFS)  Total area =       1.670(Ac.)
Depth of flow =   0.425(Ft.), Average velocity =   3.733(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      604.000 to Point/Station      604.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      1.670(Ac.)
Runoff from this stream =      6.747(CFS)
Time of concentration =    6.30 min.
Rainfall intensity =     4.490(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)


1        2.656     15.47                 2.740
2        6.747      6.30                 4.490
Largest stream flow has longer or shorter time of concentration
Qp =      6.747 + sum of
      Qa          Tb/Ta
       2.656 *    0.407 =      1.082
Qp =      7.829

Total of 2 streams to confluence:
Flow rates before confluence point:
       2.656       6.747
Area of streams before confluence:
        1.050        1.670
Results of confluence:
Total flow rate =      7.829(CFS)
Time of concentration =     6.302 min.
Effective stream area after confluence =      2.720(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      604.000 to Point/Station      605.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
________________________________________________________________________
Upstream point/station elevation =  1053.080(Ft.)
Downstream point/station elevation =  1048.960(Ft.)
Pipe length  =    46.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     7.829(CFS)
Given pipe size =     12.00(In.)
Calculated individual pipe flow  =     7.829(CFS)
Normal flow depth in pipe =    7.64(In.)
Flow top width inside pipe =   11.54(In.)
Critical depth could not be calculated.
Pipe flow velocity =     14.84(Ft/s)
Travel time through pipe =    0.05 min.
Time of concentration (TC) =     6.35 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      605.000 to Point/Station      605.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      2.720(Ac.)
Runoff from this stream =      7.829(CFS)
Time of concentration =    6.35 min.
Rainfall intensity =     4.469(In/Hr)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      801.000 to Point/Station      802.000
**** INITIAL AREA EVALUATION ****

------------------------------------------------------------------------
Initial area flow distance =   100.000(Ft.)
Top (of initial area) elevation =  1056.060(Ft.)
Bottom (of initial area) elevation =  1055.170(Ft.)
Difference in elevation =     0.890(Ft.)
Slope =    0.00890  s(percent)=       0.89
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Warning: TC computed to be less than 5 min.; program is assuming the
time of concentration is 5 minutes.
Initial area time of concentration =    5.000 min.
Rainfall intensity =      5.099(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.891
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.590(CFS)
Total initial stream area =        0.130(Ac.)
Pervious area fraction = 0.100


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Process from Point/Station      802.000 to Point/Station      605.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =      1.549(CFS)
Depth of flow =   0.225(Ft.), Average velocity =   2.814(Ft/s)
    ******* Irregular Channel Data ***********
-------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
    1              0.00              0.50
    2              0.00              0.00
    3              1.50              0.13
    4             26.50              0.53
Manning's 'N' friction factor =   0.015
-------------------------------------------------------------------
Sub-Channel flow  =      1.549(CFS)
  '     '    flow top width =      7.655(Ft.)
  '     '    velocity=    2.814(Ft/s)
  '     '    area =      0.550(Sq.Ft)
  '     '    Froude number =     1.850

Upstream point elevation =  1055.170(Ft.)
Downstream point elevation =  1048.960(Ft.)
Flow length =   221.000(Ft.)
Travel time  =    1.31 min.
Time of concentration =    6.31 min.
Depth of flow =   0.225(Ft.)
Average velocity =   2.814(Ft/s)
Total irregular channel flow =     1.549(CFS)
Irregular channel normal depth above invert elev. =   0.225(Ft.)
Average velocity of channel(s) =   2.814(Ft/s)
 Adding area flow to channel
MOBILE HOME PARK subarea type
Runoff Coefficient = 0.873
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.250; Impervious fraction =  0.750
```

```
Rainfall intensity =      4.487(In/Hr) for a   100.0 year storm
Subarea runoff =      1.842(CFS) for      0.470(Ac.)
Total runoff =      2.432(CFS)  Total area =       0.600(Ac.)
Depth of flow =   0.252(Ft.), Average velocity =   3.119(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      605.000 to Point/Station      605.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      0.600(Ac.)
Runoff from this stream =      2.432(CFS)
Time of concentration =    6.31 min.
Rainfall intensity =     4.487(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)


1        7.829      6.35                  4.469
2        2.432      6.31                  4.487
Largest stream flow has longer time of concentration
Qp =      7.829 + sum of
      Qb          Ia/Ib
       2.432 *    0.996 =      2.423
Qp =     10.252

Total of 2 streams to confluence:
Flow rates before confluence point:
       7.829       2.432
Area of streams before confluence:
        2.720        0.600
Results of confluence:
Total flow rate =     10.252(CFS)
Time of concentration =     6.354 min.
Effective stream area after confluence =      3.320(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      605.000 to Point/Station      503.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
________________________________________________________________________
Upstream point/station elevation =  1048.960(Ft.)
Downstream point/station elevation =  1048.450(Ft.)
Pipe length  =   173.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    10.252(CFS)
Given pipe size =     12.00(In.)
NOTE: Normal flow is pressure flow in user selected pipe size.
The approximate hydraulic grade line above the pipe invert is
    17.779(Ft.)  at the headworks or inlet of the pipe(s)
 Pipe friction loss =     14.321(Ft.)
 Minor friction loss =      3.969(Ft.)  K-factor =   1.50
Critical depth could not be calculated.
Pipe flow velocity =     13.05(Ft/s)
Travel time through pipe =    0.22 min.
Time of concentration (TC) =     6.57 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      503.000 to Point/Station      503.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      3.320(Ac.)
Runoff from this stream =     10.252(CFS)
Time of concentration =    6.57 min.
Rainfall intensity =     4.386(In/Hr)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      501.000 to Point/Station      502.000
**** INITIAL AREA EVALUATION ****

------------------------------------------------------------------------------
Initial area flow distance =    94.000(Ft.)
Top (of initial area) elevation =  1056.970(Ft.)
Bottom (of initial area) elevation =  1056.190(Ft.)
Difference in elevation =     0.780(Ft.)
Slope =    0.00830  s(percent)=       0.83
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Warning: TC computed to be less than 5 min.; program is assuming the
time of concentration is 5 minutes.
Initial area time of concentration =    5.000 min.
Rainfall intensity =      5.099(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.891
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      0.500(CFS)
Total initial stream area =        0.110(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      502.000 to Point/Station      503.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

------------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =      2.433(CFS)
Depth of flow =   0.378(Ft.), Average velocity =   1.705(Ft/s)
    ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
    1              0.00              1.00
    2             10.00              0.00
    3             20.00              1.00
Manning's 'N' friction factor =   0.016
------------------------------------------------------------------
Sub-Channel flow  =      2.433(CFS)
  '     '    flow top width =      7.555(Ft.)
  '     '    velocity=    1.705(Ft/s)
  '     '    area =      1.427(Sq.Ft)
  '     '    Froude number =     0.691

Upstream point elevation =  1056.190(Ft.)
Downstream point elevation =  1055.060(Ft.)
Flow length =   361.000(Ft.)
Travel time  =    3.53 min.
Time of concentration =    8.53 min.
Depth of flow =   0.378(Ft.)
Average velocity =   1.705(Ft/s)
Total irregular channel flow =     2.433(CFS)
Irregular channel normal depth above invert elev. =   0.378(Ft.)
Average velocity of channel(s) =   1.705(Ft/s)
 Adding area flow to channel
MOBILE HOME PARK subarea type
Runoff Coefficient = 0.869
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.250; Impervious fraction =  0.750
```

```
Rainfall intensity =      3.801(In/Hr) for a   100.0 year storm
Subarea runoff =      3.767(CFS) for      1.140(Ac.)
Total runoff =      4.267(CFS)  Total area =       1.250(Ac.)
Depth of flow =   0.466(Ft.), Average velocity =   1.962(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      503.000 to Point/Station      503.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      1.250(Ac.)
Runoff from this stream =      4.267(CFS)
Time of concentration =    8.53 min.
Rainfall intensity =     3.801(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)


1       10.252      6.57                  4.386
2        4.267      8.53                  3.801
Largest stream flow has longer or shorter time of concentration
Qp =     10.252 + sum of
      Qa          Tb/Ta
       4.267 *    0.771 =      3.289
Qp =     13.542

Total of 2 streams to confluence:
Flow rates before confluence point:
      10.252       4.267
Area of streams before confluence:
        3.320        1.250
Results of confluence:
Total flow rate =     13.542(CFS)
Time of concentration =     6.575 min.
Effective stream area after confluence =      4.570(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      503.000 to Point/Station      504.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
________________________________________________________________________
Upstream point/station elevation =  1055.060(Ft.)
Downstream point/station elevation =  1051.190(Ft.)
Pipe length  =   231.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    13.542(CFS)
Given pipe size =     12.00(In.)
NOTE: Normal flow is pressure flow in user selected pipe size.
The approximate hydraulic grade line above the pipe invert is
    36.414(Ft.)  at the headworks or inlet of the pipe(s)
 Pipe friction loss =     33.360(Ft.)
 Minor friction loss =      6.924(Ft.)  K-factor =   1.50
Critical depth could not be calculated.
Pipe flow velocity =     17.24(Ft/s)
Travel time through pipe =    0.22 min.
Time of concentration (TC) =     6.80 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      505.000 to Point/Station      504.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
MOBILE HOME PARK subarea type
Runoff Coefficient = 0.873
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
```

```
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.250; Impervious fraction =  0.750
Time of concentration =     6.80 min.
Rainfall intensity =      4.306(In/Hr) for a   100.0 year storm
Subarea runoff =      1.315(CFS) for      0.350(Ac.)
Total runoff =     14.857(CFS)  Total area =       4.920(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      504.000 to Point/Station      106.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
________________________________________________________________________
Upstream point/station elevation =  1051.190(Ft.)
Downstream point/station elevation =  1046.860(Ft.)
Pipe length  =    18.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    14.857(CFS)
Given pipe size =     18.00(In.)
Calculated individual pipe flow  =    14.857(CFS)
Normal flow depth in pipe =    6.62(In.)
Flow top width inside pipe =   17.36(In.)
Critical Depth =   16.83(In.)
Pipe flow velocity =     25.22(Ft/s)
Travel time through pipe =    0.01 min.
Time of concentration (TC) =     6.81 min.
End of computations, total study area =            4.92 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.165
Area averaged RI index number =  69.0
```

5c. CIVILD MITIGATION POST-DEVELOPMENT CALCULATIONS

HEC-HMS

HEC-HMS was used for the hydrology/detention calculations. Hydrographs were created on the HEC HMS Preprocessor from Riverside County Flood Control and inputted into the HEC-HMS program.

For organization two files were created for each POC. The outflow calculations for each POC were then inputted into the civil d calculations to prove the Post-Development of the site does not pass the Pre-Development flow.

The paired data was created to show the basin volumes, outflows, and storm chambers volumes with outflows.

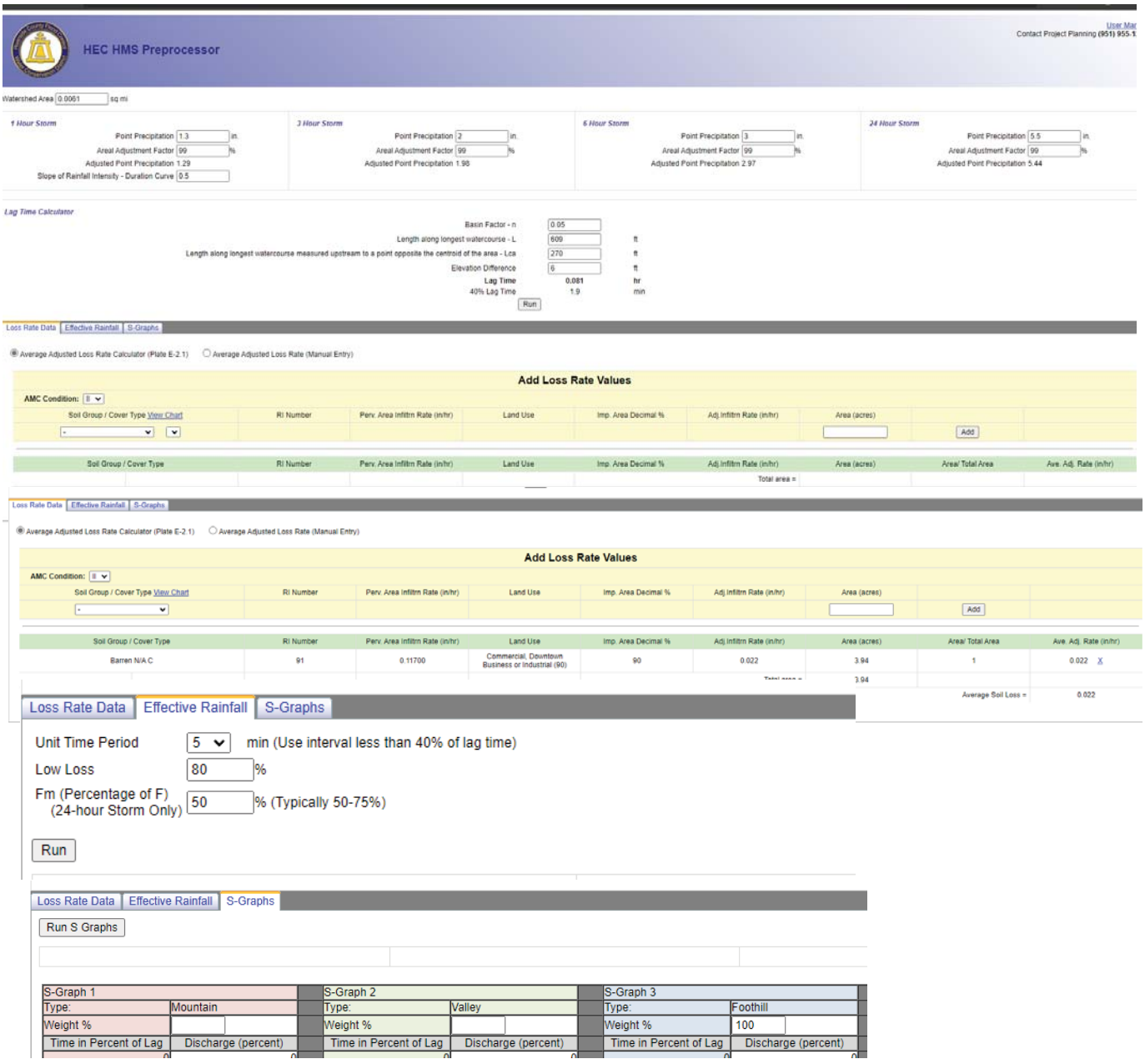
The following sheets show the process of creating hydrographs, the HEC-HMS models, results, and the mitigated civil d calculations.

See Summary Table in Hydrology Writeup for more information.

HYDROGRAPHS

EXAMPLE OF HYDROGRAPH CREATION

http://content.rcflood.org/hechms/



RCFC & WCD

HYDROLOGY MANUAL

TERMINOLOGY

L = LENGTH OF LONGEST WATERCOURSE.

L_{ca} = LENGTH ALONG LONGEST WATERCOURSE, MEASURED UPSTREAM TO POINT OPPOSITE CENTER OF AREA.

S = OVER-ALL SLOPE OF LONGEST WATERCOURSE BETWEEN HEADWATER AND COLLECTION POINT.

LAG = ELAPSED TIME FROM BEGINNING OF UNIT PRECIPITATION TO INSTANT THAT SUMMATION HYDROGRAPH REACHES 50 % OF ULTIMATE DISCHARGE.

$\bar{n}$ = VISUALLY ESTIMATED MEAN OF THE n (MANNING'S FORMULA) VALUES OF ALL THE CHANNELS WITHIN AN AREA.

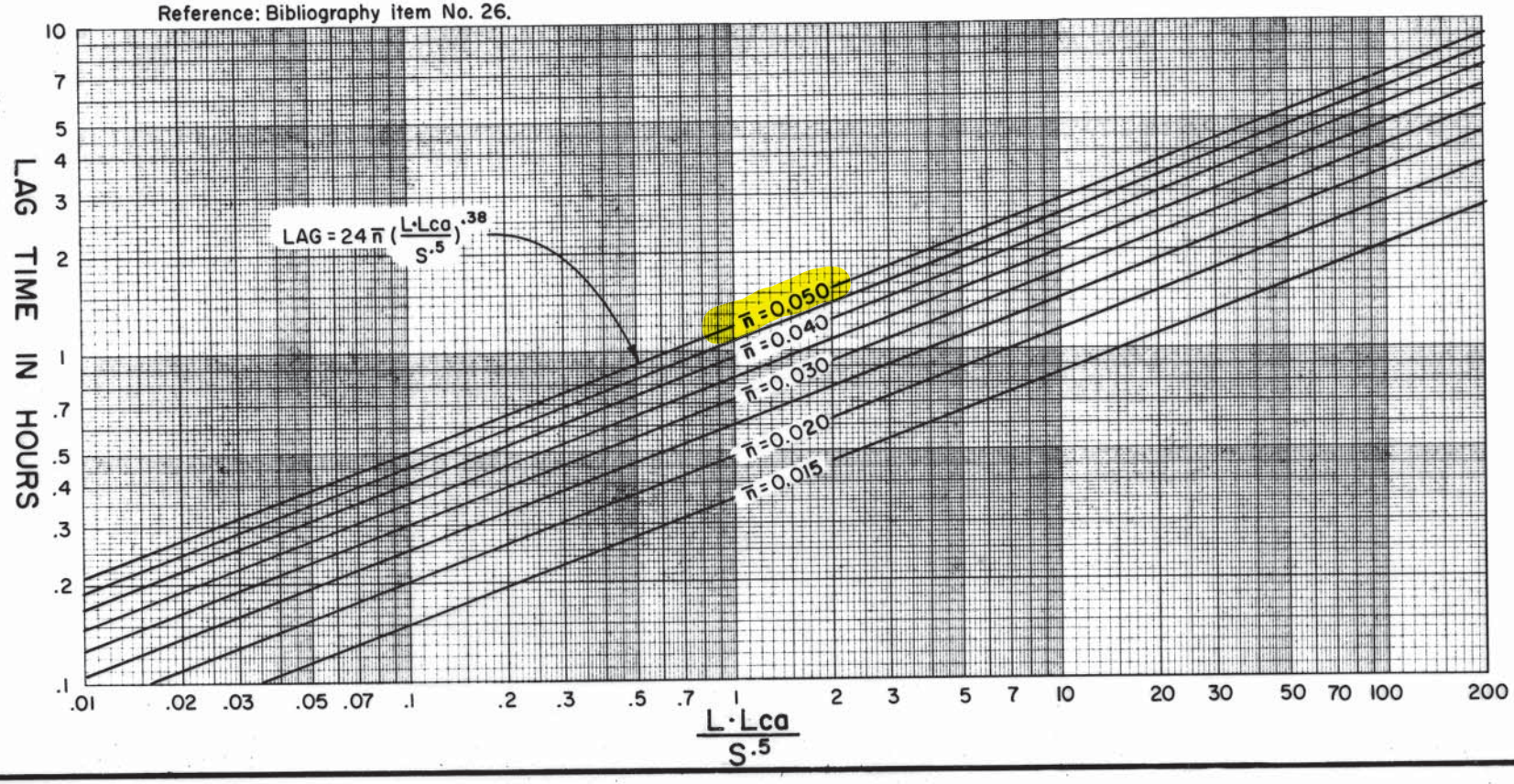
GUIDE FOR ESTIMATING BASIN FACTOR ($\bar{n}$)

$\bar{n}$=0.050: DRAINAGE AREA IS QUITE RUGGED, WITH SHARP RIDGES AND NARROW, STEEP CANYONS THROUGH WHICH WATERCOURSES MEANDER AROUND SHARP BENDS, OVER LARGE BOULDERS, AND CONSIDERABLE DEBRIS OBSTRUCTION. THE GROUND COVER, EXCLUDING SMALL AREAS OF ROCK OUTCROPS, INCLUDES MANY TREES AND CONSIDERABLE UNDERBRUSH. NO DRAINAGE IMPROVEMENTS EXIST IN THE AREA.

$\bar{n}$=0.030: DRAINAGE AREA IS GENERALLY ROLLING, WITH ROUNDED RIDGES AND MODERATE SIDE SLOPES. WATERCOURSES MEANDER IN FAIRLY STRAIGHT, UNIMPROVED CHANNELS WITH SOME BOULDERS AND LODGED DEBRIS. GROUND COVER INCLUDES SCATTERED BRUSH AND GRASSES. NO DRAINAGE IMPROVEMENTS EXIST IN THE AREA.

$\bar{n}$=0.015: DRAINAGE AREA HAS FAIRLY UNIFORM, GENTLE SLOPES WITH MOST WATERCOURSES EITHER IMPROVED OR ALONG PAVED STREETS. GROUND COVER CONSISTS OF SOME GRASSES WITH APPRECIABLE AREAS DEVELOPED TO THE EXTENT THAT A LARGE PERCENTAGE OF THE AREA IS IMPERVIOUS.

Reference: Bibliography item No. 26.

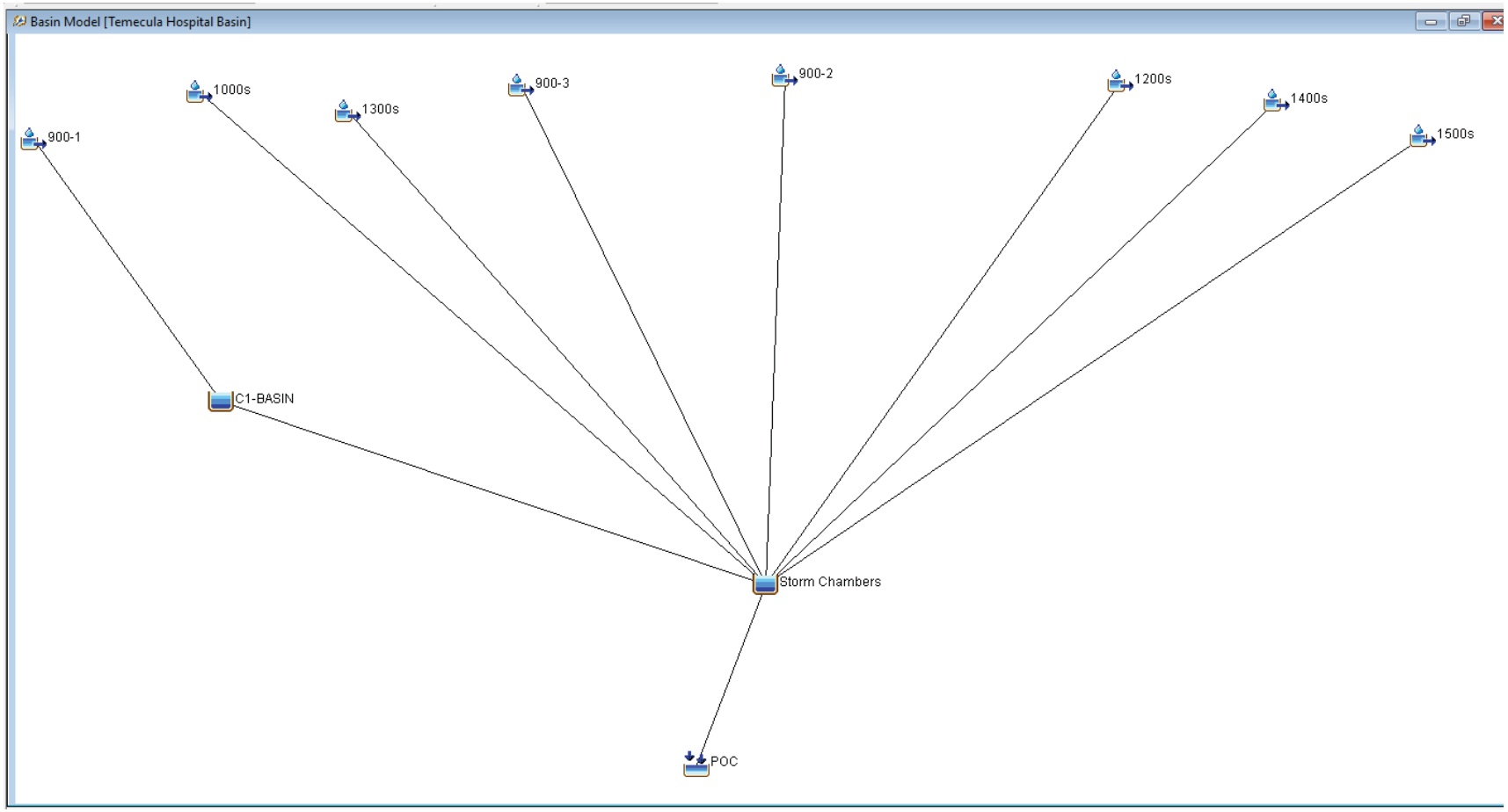


LAG RELATIONSHIPS FOR SOUTHERN CALIFORNIA

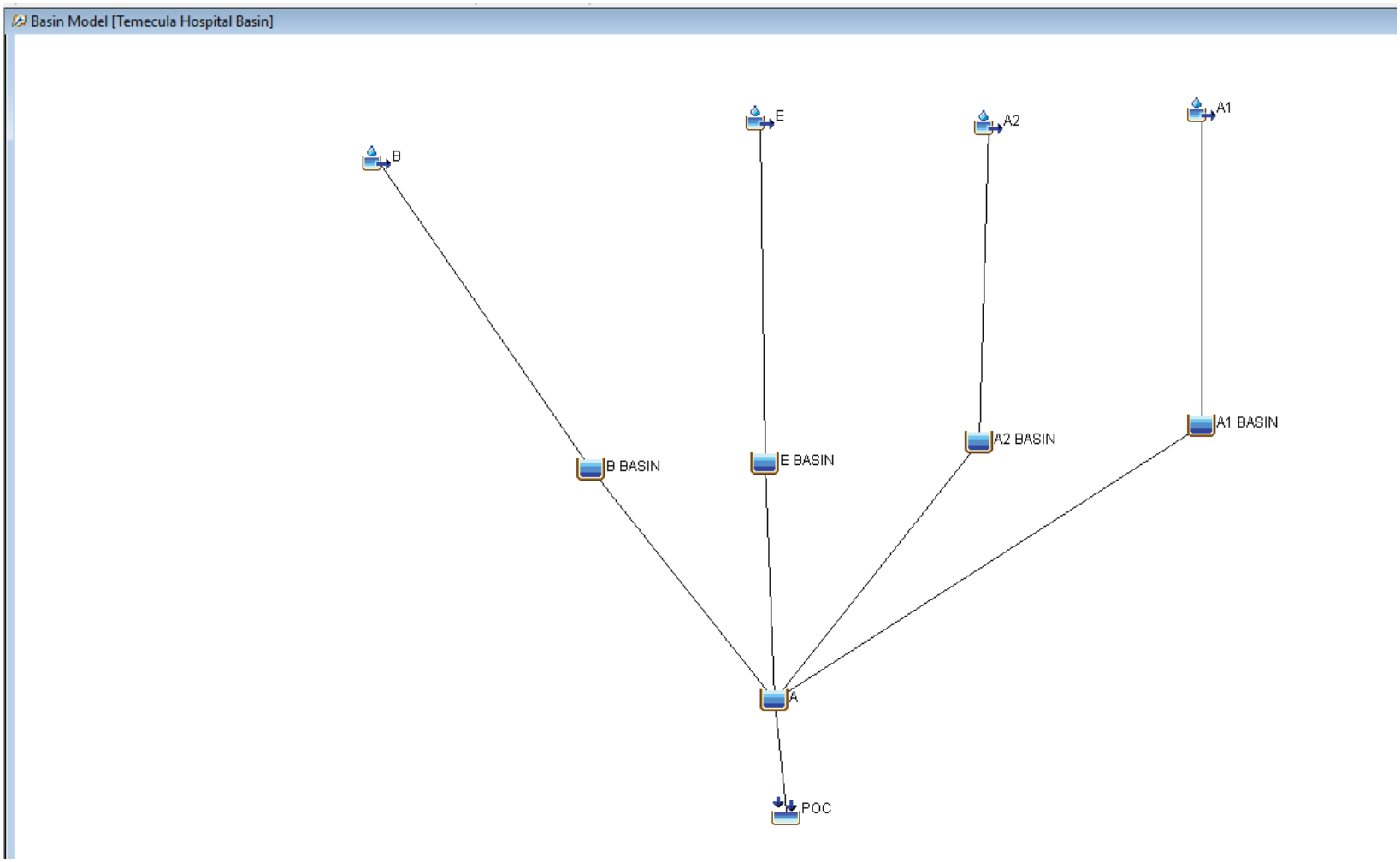
PLATE E-3

MODELS

EAST POC- 2


Basin Model [Temecula Hospital Basin]
1000s
1300s
900-3
900-2
1200s
1400s
1500s
900-1
C1-BASIN
Storm Chambers
POC

WEST POC- 1


Basin Model [Temecula Hospital Basin]
B
E
A2
A1
B BASIN
E BASIN
A2 BASIN
A1 BASIN
A
POC

STORM CHAMBER SETUP

Project: TEMECULA VALLEY HOSPITAL

Chamber Model -	MC-3500	
Units -	Imperial	
Number of Chambers -	7	
Number of End Caps -	14	
Voids in the stone (porosity) -	40	%
Base of Stone Elevation -	0.00	ft
Amount of Stone Above Chambers -	29	in
Amount of Stone Below Chambers -	36	in
Amount of Stone Between Chambers -	9	in
Area of system -	12443	sf Min. Area - 620 sf min. area

SIZES

Include Perimeter Stone in Calculations

Click for Stage Area Data

Click Here for Metric

FOR HEC-RAS

StormTech MC-3500 Cumulative Storage Volumes

Height of System (inches)	Incremental Single Chamber (cubic feet)	Incremental Single End Cap (cubic feet)	Incremental Chambers (cubic feet)	Incremental End Cap (cubic feet)	Incremental Stone (cubic feet)	Incremental Ch, EC and Stone (cubic feet)	Cumulative System (cubic feet)	Elevation (feet)
110	0.00	0.00	0.00	0.00	414.77	414.77	46212.56	9.17
109	0.00	0.00	0.00	0.00	414.77	414.77	45797.79	9.08
108	0.00	0.00	0.00	0.00	414.77	414.77	45383.02	9.00
107	0.00	0.00	0.00	0.00	414.77	414.77	44968.24	8.92
106	0.00	0.00	0.00	0.00	414.77	414.77	44553.47	8.83
105	0.00	0.00	0.00	0.00	414.77	414.77	44138.69	8.75
104	0.00	0.00	0.00	0.00	414.77	414.77	43723.92	8.67
103	0.00	0.00	0.00	0.00	414.77	414.77	43309.14	8.58
102	0.00	0.00	0.00	0.00	414.77	414.77	42894.37	8.50
101	0.00	0.00	0.00	0.00	414.77	414.77	42479.60	8.42
100	0.00	0.00	0.00	0.00	414.77	414.77	42064.82	8.33
99	0.00	0.00	0.00	0.00	414.77	414.77	41650.05	8.25
98	0.00	0.00	0.00	0.00	414.77	414.77	41235.27	8.17
97	0.00	0.00	0.00	0.00	414.77	414.77	40820.50	8.08
96	0.00	0.00	0.00	0.00	414.77	414.77	40405.73	8.00
95	0.00	0.00	0.00	0.00	414.77	414.77	39990.95	7.92
94	0.00	0.00	0.00	0.00	414.77	414.77	39576.18	7.83
93	0.00	0.00	0.00	0.00	414.77	414.77	39161.40	7.75
92	0.00	0.00	0.00	0.00	414.77	414.77	38746.63	7.67
91	0.00	0.00	0.00	0.00	414.77	414.77	38331.85	7.58
90	0.00	0.00	0.00	0.00	414.77	414.77	37917.08	7.50
89	0.00	0.00	0.00	0.00	414.77	414.77	37502.31	7.42
88	0.00	0.00	0.00	0.00	414.77	414.77	37087.53	7.33
87	0.00	0.00	0.00	0.00	414.77	414.77	36672.76	7.25
86	0.00	0.00	0.00	0.00	414.77	414.77	36257.98	7.17
85	0.00	0.00	0.00	0.00	414.77	414.77	35843.21	7.08
84	0.00	0.00	0.00	0.00	414.77	414.77	35428.44	7.00
83	0.00	0.00	0.00	0.00	414.77	414.77	35013.66	6.92
82	0.00	0.00	0.00	0.00	414.77	414.77	34598.89	6.83
81	0.06	0.00	0.41	0.00	414.61	415.02	34184.11	6.75
80	0.19	0.02	1.36	0.33	414.10	415.79	33769.10	6.67
79	0.29	0.04	2.06	0.53	413.74	416.32	33353.31	6.58
78	0.40	0.05	2.83	0.72	413.36	416.90	32936.98	6.50
77	0.69	0.07	4.81	0.95	412.47	418.23	32520.08	6.42
76	1.03	0.09	7.20	1.24	411.40	419.83	32101.85	6.33
75	1.25	0.11	8.75	1.50	410.68	420.92	31682.02	6.25
74	1.42	0.13	9.96	1.77	410.08	421.81	31261.09	6.17
73	1.57	0.14	11.01	2.02	409.56	422.59	30839.29	6.08
72	1.71	0.16	11.95	2.28	409.08	423.31	30416.69	6.00
71	1.83	0.18	12.80	2.54	408.64	423.98	29993.38	5.92
70	1.94	0.20	13.56	2.81	408.23	424.60	29569.40	5.83
69	2.04	0.22	14.29	3.06	407.84	425.18	29144.80	5.75
68	2.13	0.23	14.94	3.29	407.48	425.71	28719.62	5.67
67	2.22	0.25	15.57	3.51	407.14	426.22	28293.91	5.58
66	2.31	0.27	16.15	3.72	406.83	426.69	27867.69	5.50
65	2.38	0.28	16.69	3.92	406.53	427.14	27441.00	5.42
64	2.46	0.29	17.21	4.12	406.24	427.57	27013.85	5.33
63	2.53	0.31	17.70	4.31	405.97	427.98	26586.28	5.25
62	2.59	0.32	18.16	4.50	405.71	428.37	26158.30	5.17
61	2.66	0.33	18.59	4.68	405.46	428.74	25729.94	5.08
60	2.72	0.35	19.01	4.86	405.23	429.09	25301.20	5.00
59	2.77	0.36	19.40	5.04	405.00	429.44	24872.11	4.92
58	2.82	0.37	19.77	5.21	404.78	429.76	24442.67	4.83
57	2.88	0.38	20.13	5.38	404.57	430.08	24012.90	4.75
56	2.92	0.40	20.47	5.54	404.37	430.38	23582.82	4.67
55	2.97	0.41	20.79	5.71	404.18	430.67	23152.44	4.58
54	3.01	0.42	21.09	5.86	403.99	430.94	22721.77	4.50
53	3.05	0.43	21.37	6.02	403.82	431.21	22290.83	4.42
52	3.09	0.44	21.66	6.17	403.64	431.47	21859.62	4.33
51	3.13	0.45	21.91	6.31	403.48	431.71	21428.15	4.25
50	3.17	0.46	22.16	6.45	403.33	431.94	20996.44	4.17
49	3.20	0.47	22.40	6.59	403.18	432.17	20564.50	4.08
48	3.23	0.48	22.62	6.72	403.04	432.38	20132.34	4.00
47	3.26	0.49	22.83	6.85	402.90	432.58	19699.96	3.92
46	3.29	0.50	23.03	6.97	402.77	432.78	19267.38	3.83
45	3.32	0.51	23.23	7.09	402.65	432.96	18834.60	3.75
44	3.34	0.51	23.41	7.20	402.53	433.14	18401.64	3.67
43	3.37	0.52	23.58	7.31	402.42	433.31	17968.50	3.58
42	3.39	0.53	23.75	7.41	402.31	433.47	17535.19	3.50
41	3.41	0.54	23.90	7.51	402.21	433.62	17101.72	3.42
40	3.44	0.54	24.06	7.60	402.11	433.77	16668.09	3.33
39	3.46	0.55	24.20	7.69	402.02	433.91	16234.32	3.25
38	3.48	0.56	24.35	7.77	401.92	434.05	15800.41	3.17
37	3.51	0.59	24.54	8.33	401.63	434.49	15366.36	3.08
36	0.00	0.00	0.00	0.00	414.77	414.77	14931.87	3.00
35	0.00	0.00	0.00	0.00	414.77	414.77	14517.09	2.92
34	0.00	0.00	0.00	0.00	414.77	414.77	14102.32	2.83
33	0.00	0.00	0.00	0.00	414.77	414.77	13687.55	2.75
32	0.00	0.00	0.00	0.00	414.77	414.77	13272.77	2.67
31	0.00	0.00	0.00	0.00	414.77	414.77	12858.00	2.58
30	0.00	0.00	0.00	0.00	414.77	414.77	12443.22	2.50
29	0.00	0.00	0.00	0.00	414.77	414.77	12028.45	2.42
28	0.00	0.00	0.00	0.00	414.77	414.77	11613.68	2.33
27	0.00	0.00	0.00	0.00	414.77	414.77	11198.90	2.25
26	0.00	0.00	0.00	0.00	414.77	414.77	10784.13	2.17
25	0.00	0.00	0.00	0.00	414.77	414.77	10369.35	2.08
24	0.00	0.00	0.00	0.00	414.77	414.77	9954.58	2.00
23	0.00	0.00	0.00	0.00	414.77	414.77	9539.80	1.92
22	0.00	0.00	0.00	0.00	414.77	414.77	9125.03	1.83
21	0.00	0.00	0.00	0.00	414.77	414.77	8710.26	1.75
20	0.00	0.00	0.00	0.00	414.77	414.77	8295.48	1.67
19	0.00	0.00	0.00	0.00	414.77	414.77	7880.71	1.58
18	0.00	0.00	0.00	0.00	414.77	414.77	7465.93	1.50
17	0.00	0.00	0.00	0.00	414.77	414.77	7051.16	1.42
16	0.00	0.00	0.00	0.00	414.77	414.77	6636.39	1.33
15	0.00	0.00	0.00	0.00	414.77	414.77	6221.61	1.25
14	0.00	0.00	0.00	0.00	414.77	414.77	5806.84	1.17
13	0.00	0.00	0.00	0.00	414.77	414.77	5392.06	1.08
12	0.00	0.00	0.00	0.00	414.77	414.77	4977.29	1.00
11	0.00	0.00	0.00	0.00	414.77	414.77	4562.52	0.92
10	0.00	0.00	0.00	0.00	414.77	414.77	4147.74	0.83
9	0.00	0.00	0.00	0.00	414.77	414.77	3732.97	0.75
8	0.00	0.00	0.00	0.00	414.77	414.77	3318.19	0.67
7	0.00	0.00	0.00	0.00	414.77	414.77	2903.42	0.58
6	0.00	0.00	0.00	0.00	414.77	414.77	2488.64	0.50
5	0.00	0.00	0.00	0.00	414.77	414.77	2073.87	0.42
4	0.00	0.00	0.00	0.00	414.77	414.77	1659.10	0.33
3	0.00	0.00	0.00	0.00	414.77	414.77	1244.32	0.25
2	0.00	0.00	0.00	0.00	414.77	414.77	829.55	0.17
1	0.00	0.00	0.00	0.00	414.77	414.77	414.77	0.08

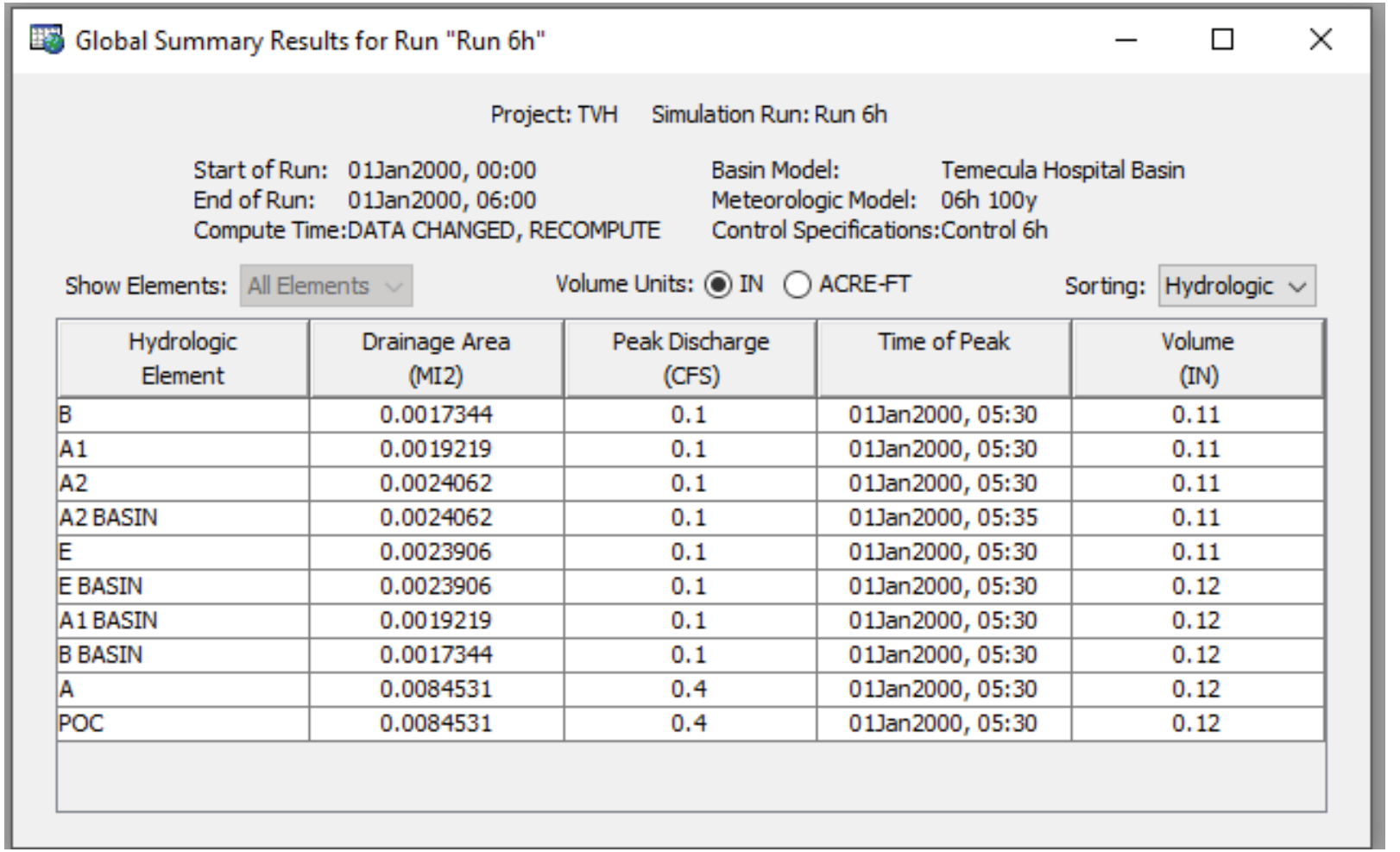
Stage Area Data

EXCEL DATA

Depth (feet)	Elevation (feet)	Area (ft2)	Area (acres)	Volume (Acre-ft)
0.00	0.00000	4977.29	0.1143	0.0000
0.08	0.08333	4977.29	0.1143	0.0095
0.17	0.16667	4977.29	0.1143	0.0190
0.25	0.25000	4977.29	0.1143	0.0286
0.33	0.33333	4977.29	0.1143	0.0381
0.42	0.41667	4977.29	0.1143	0.0476
0.50	0.50000	4977.29	0.1143	0.0571
0.58	0.58333	4977.29	0.1143	0.0667
0.67	0.66667	4977.29	0.1143	0.0762
0.75	0.75000	4977.29	0.1143	0.0857
0.83	0.83333	4977.29	0.1143	0.0952
0.92	0.91667	4977.29	0.1143	0.1047
1.00	1.00000	4977.29	0.1143	0.1143
1.08	1.08333	4977.29	0.1143	0.1238
1.17	1.16667	4977.29	0.1143	0.1333
1.25	1.25000	4977.29	0.1143	0.1428
1.33	1.33333	4977.29	0.1143	0.1524
1.42	1.41667	4977.29	0.1143	0.1619
1.50	1.50000	4977.29	0.1143	0.1714
1.58	1.58333	4977.29	0.1143	0.1809
1.67	1.66667	4977.29	0.1143	0.1904
1.75	1.75000	4977.29	0.1143	0.2000
1.83	1.83333	4977.29	0.1143	0.2095
1.92	1.91667	4977.29	0.1143	0.2190
2.00	2.00000	4977.29	0.1143	0.2285
2.08	2.08333	4977.29	0.1143	0.2380
2.17	2.16667	4977.29	0.1143	0.2476
2.25	2.25000	4977.29	0.1143	0.2571
2.33	2.33333	4977.29	0.1143	0.2666
2.42	2.41667	4977.29	0.1143	0.2761
2.50	2.50000	4977.29	0.1143	0.2857
2.58	2.58333	4977.29	0.1143	0.2952
2.67	2.66667	4977.29	0.1143	0.3047
2.75	2.75000	4977.29	0.1143	0.3142
2.83	2.83333	4977.29	0.1143	0.3237
2.92	2.91667	4977.29	0.1143	0.3333
3.00	3.00000	4977.29	0.1143	0.3428
3.08	3.08333	5213.91	0.1197	0.3691
3.17	3.16667	5208.58	0.1196	0.3786
3.25	3.25000	5206.94	0.1195	0.3885
3.33	3.33333	5205.27	0.1195	0.3983
3.42	3.41667	5203.47	0.1195	0.4081
3.50	3.50000	5201.65	0.1194	0.4179
3.58	3.58333	5199.71	0.1194	0.4277
3.67	3.66667	5197.69	0.1193	0.4375
3.75	3.75000	5195.56	0.1193	0.4473
3.83	3.83333	5193.31	0.1192	0.4570
3.92	3.91667	5190.98	0.1192	0.4667
4.00	4.00000	5188.53	0.1191	0.4764
4.08	4.08333	5185.98	0.1191	0.4861
4.17	4.16667	5183.29	0.1190	0.4958
4.25	4.25000	5180.51	0.1189	0.5054
4.33	4.33333	5177.63	0.1189	0.5151
4.42	4.41667	5174.48	0.1188	0.5247
4.50	4.50000	5171.32	0.1187	0.5342
4.58	4.58333	5168.06	0.1186	0.5438
4.67	4.66667	5164.59	0.1186	0.5533
4.75	4.75000	5160.95	0.1185	0.5628
4.83	4.83333	5157.18	0.1184	0.5722
4.92	4.91667	5153.25	0.1183	0.5817
5.00	5.00000	5149.11	0.1182	0.5910
5.08	5.08333	5144.87	0.1181	0.6004
5.17	5.16667	5140.39	0.1180	0.6097
5.25	5.25000	5135.74	0.1179	0.6190
5.33	5.33333	5130.86	0.1178	0.6282
5.42	5.41667	5125.70	0.1177	0.6374
5.50	5.50000	5120.32	0.1175	0.6465
5.58	5.58333	5114.64	0.1174	0.6556
5.67	5.66667	5108.56	0.1173	0.6646
5.75	5.75000	5102.15	0.1171	0.6735
5.83	5.83333	5095.17	0.1170	0.6823
5.92	5.91667	5087.76	0.1168	0.6911
6.00	6.00000	5079.74	0.1166	0.6997
6.08	6.08333	5071.13	0.1164	0.7082
6.17	6.16667	5061.71	0.1162	0.7166
6.25	6.25000	5051.07	0.1160	0.7247
6.33	6.33333	5038.01	0.1157	0.7325
6.42	6.41667	5018.73	0.1152	0.7393
6.50	6.50000	5002.83	0.1148	0.7465
6.58	6.58333	4995.89	0.1147	0.7550
6.67	6.66667	4989.48	0.1145	0.7636
6.75	6.75000	4980.22	0.1143	0.7717
6.83	6.83	4977.29	0.1143	0.7808
6.92	6.92	4977.29	0.1143	0.7903
7.00	7.00	4977.29	0.1143	0.7998
7.08	7.08	4977.29	0.1143	0.8094
7.17	7.17	4977.29	0.1143	0.8189
7.25	7.25	4977.29	0.1143	0.8284
7.33	7.33	4977.29	0.1143	0.8379
7.42	7.42	4977.29	0.1143	0.8474
7.50	7.50	4977.29	0.1143	0.8570
7.58	7.58	4977.29	0.1143	0.8665
7.67	7.67	4977.29	0.1143	0.8760
7.75	7.75	4977.29	0.1143	0.8855
7.83	7.83	4977.29	0.1143	0.8951
7.92	7.92	4977.29	0.1143	0.9046
8.00	8.00	4977.29	0.1143	0.9141
8.08	8.08	4977.29	0.1143	0.9236
8.17	8.17	4977.29	0.1143	0.9331
8.25	8.25	4977.29	0.1143	0.9427
8.33	8.33	4977.29	0.1143	0.9522
8.42	8.42	4977.29	0.1143	0.9617
8.50	8.50	4977.29	0.1143	0.9712
8.58	8.58	4977.29	0.1143	0.9808
8.67	8.67	4977.29	0.1143	0.9903
8.75	8.75	4977.29	0.1143	0.9998
8.83	8.83	4977.29	0.1143	1.0093
8.92	8.92	4977.29	0.1143	1.0188
9.00	9.00	4977.29	0.1143	1.0284
9.08	9.08	4977.29	0.1143	1.0379
9.17	9.17	4977.29	0.1143	1.0474

RESULTS

WEST POC-1



Global Summary Results for Run "Run 6h"

Project: TVH Simulation Run: Run 6h

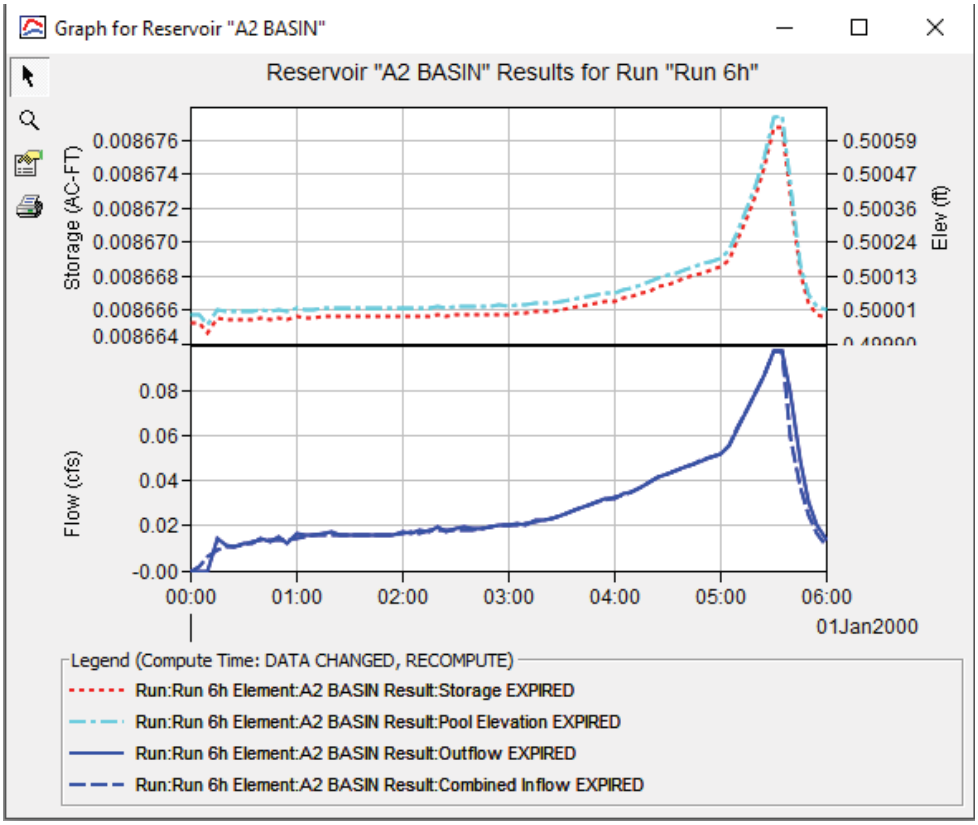
Start of Run: 01Jan2000, 00:00
End of Run: 01Jan2000, 06:00
Compute Time: DATA CHANGED, RECOMPUTE

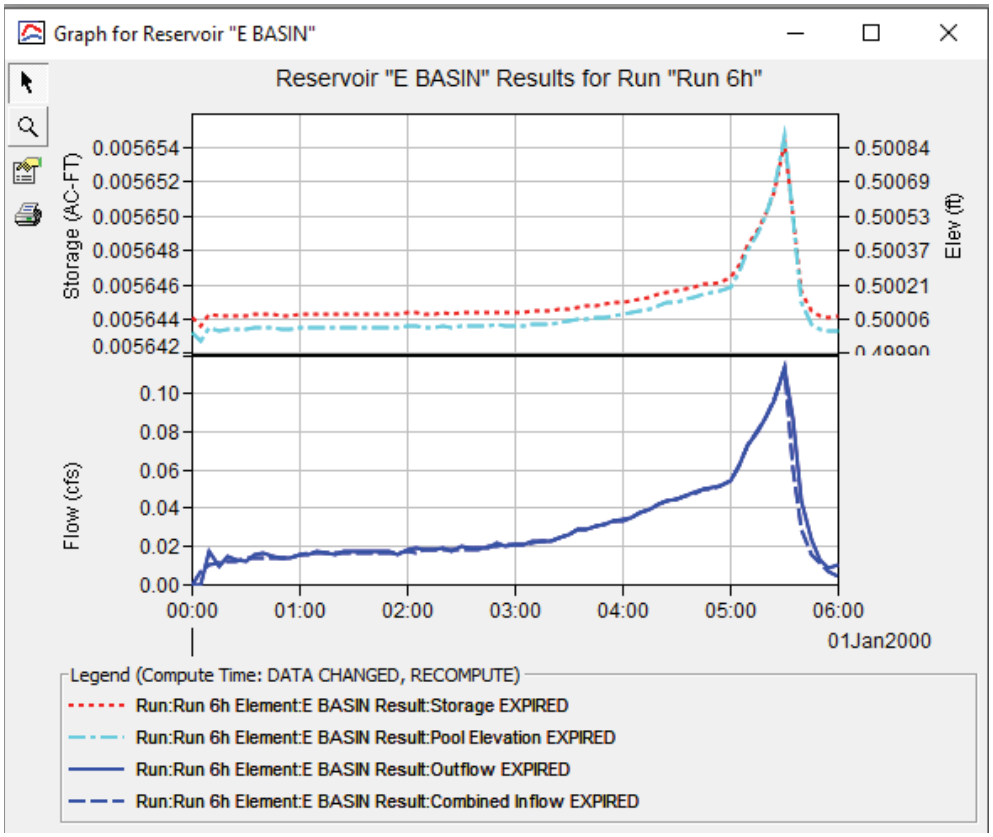
Basin Model: Temecula Hospital Basin
Meteorologic Model: 06h 100y
Control Specifications: Control 6h

Show Elements: All Elements | Volume Units: (•) IN ( ) ACRE-FT | Sorting: Hydrologic

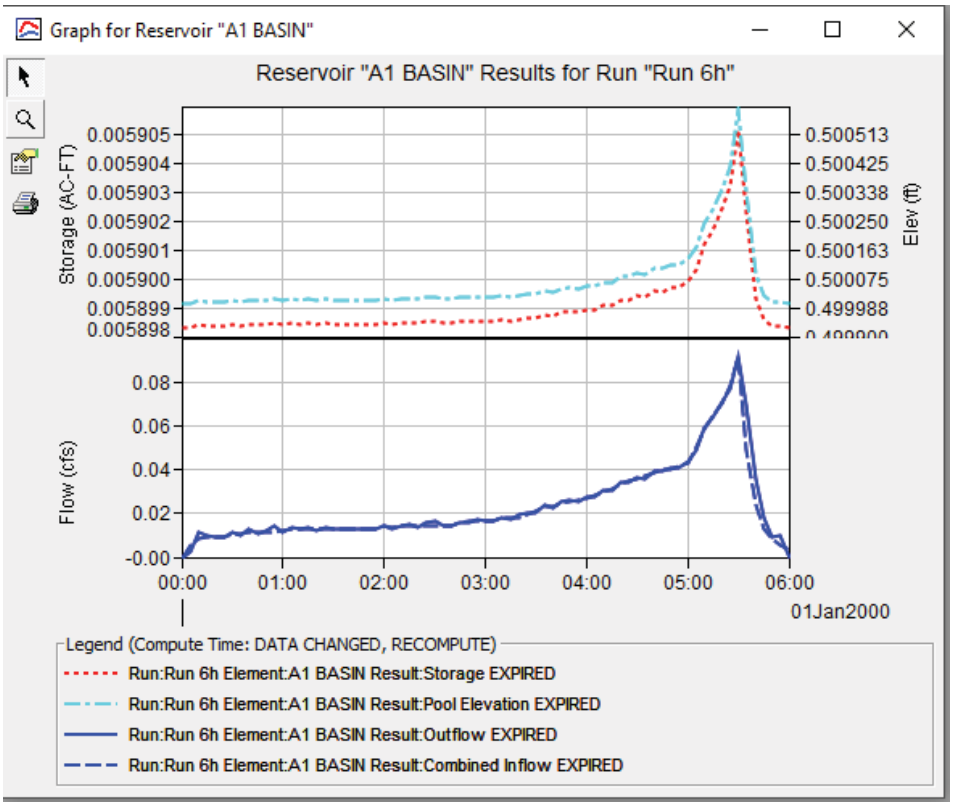
Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
B	0.0017344	0.1	01Jan2000, 05:30	0.11
A1	0.0019219	0.1	01Jan2000, 05:30	0.11
A2	0.0024062	0.1	01Jan2000, 05:30	0.11
A2 BASIN	0.0024062	0.1	01Jan2000, 05:35	0.11
E	0.0023906	0.1	01Jan2000, 05:30	0.11
E BASIN	0.0023906	0.1	01Jan2000, 05:30	0.12
A1 BASIN	0.0019219	0.1	01Jan2000, 05:30	0.12
B BASIN	0.0017344	0.1	01Jan2000, 05:30	0.12
A	0.0084531	0.4	01Jan2000, 05:30	0.12
POC	0.0084531	0.4	01Jan2000, 05:30	0.12

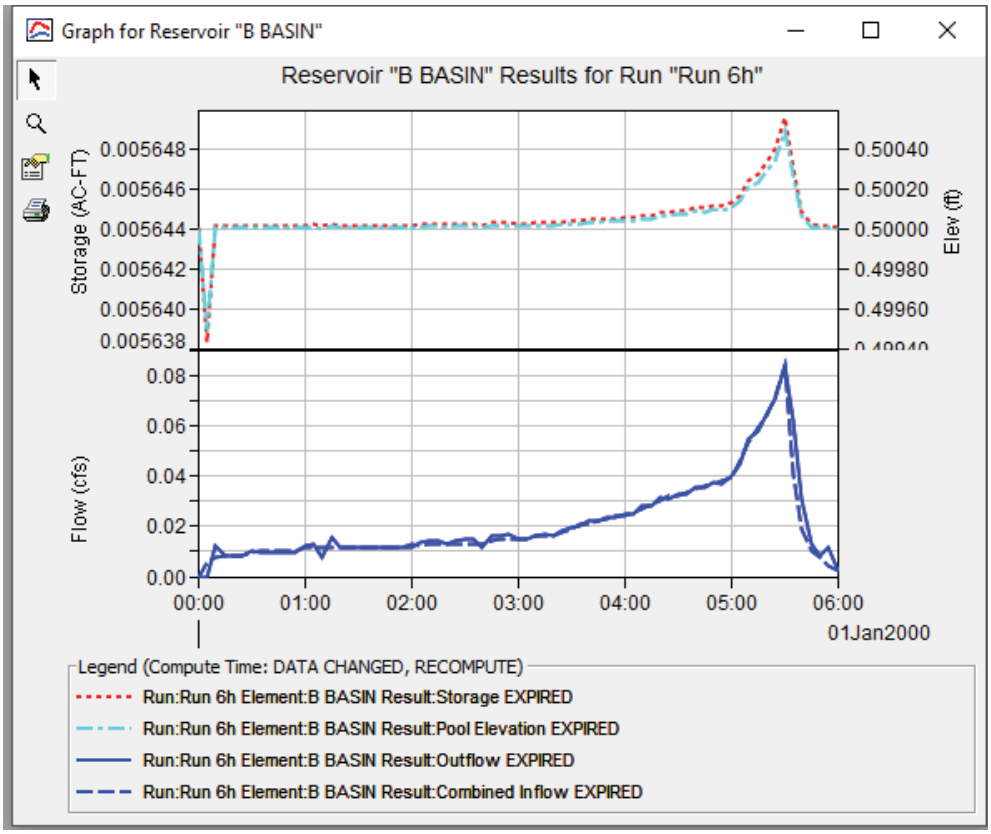
WEST POC-1


Graph for Reservoir "A2 BASIN"
Reservoir "A2 BASIN" Results for Run "Run 6h"
Storage (AC-FT)
0.008676
0.008674
0.008672
0.008670
0.008668
0.008666
0.008664
Elev (ft)
0.50059
0.50047
0.50036
0.50024
0.50013
0.50001
Flow (cfs)
0.08
0.06
0.04
0.02
-0.00
00:00
01:00
02:00
03:00
04:00
05:00
06:00
01Jan2000
Legend (Compute Time: DATA CHANGED, RECOMPUTE)
Run:Run 6h Element:A2 BASIN Result:Storage EXPIRED
Run:Run 6h Element:A2 BASIN Result:Pool Elevation EXPIRED
Run:Run 6h Element:A2 BASIN Result:Outflow EXPIRED
Run:Run 6h Element:A2 BASIN Result:Combined Inflow EXPIRED

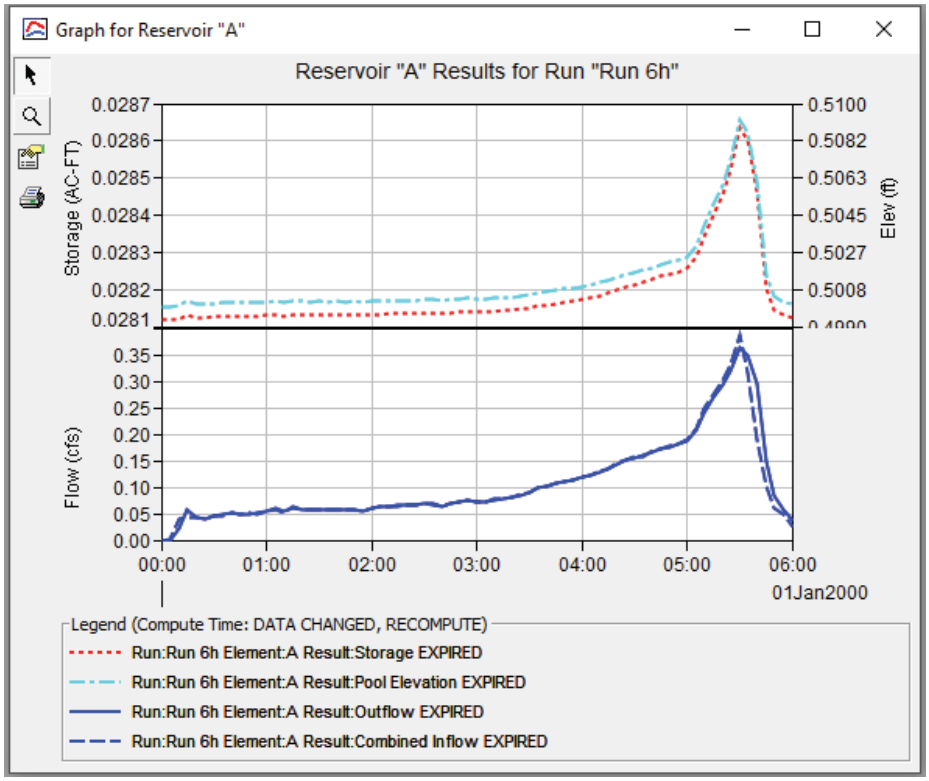

Graph for Reservoir "E BASIN"
Reservoir "E BASIN" Results for Run "Run 6h"
Storage (AC-FT)
0.005654
0.005652
0.005650
0.005648
0.005646
0.005644
0.005642
Elev (ft)
0.50084
0.50069
0.50053
0.50037
0.50021
0.50006
Flow (cfs)
0.10
0.08
0.06
0.04
0.02
0.00
00:00
01:00
02:00
03:00
04:00
05:00
06:00
01Jan2000
Legend (Compute Time: DATA CHANGED, RECOMPUTE)
Run:Run 6h Element:E BASIN Result:Storage EXPIRED
Run:Run 6h Element:E BASIN Result:Pool Elevation EXPIRED
Run:Run 6h Element:E BASIN Result:Outflow EXPIRED
Run:Run 6h Element:E BASIN Result:Combined Inflow EXPIRED

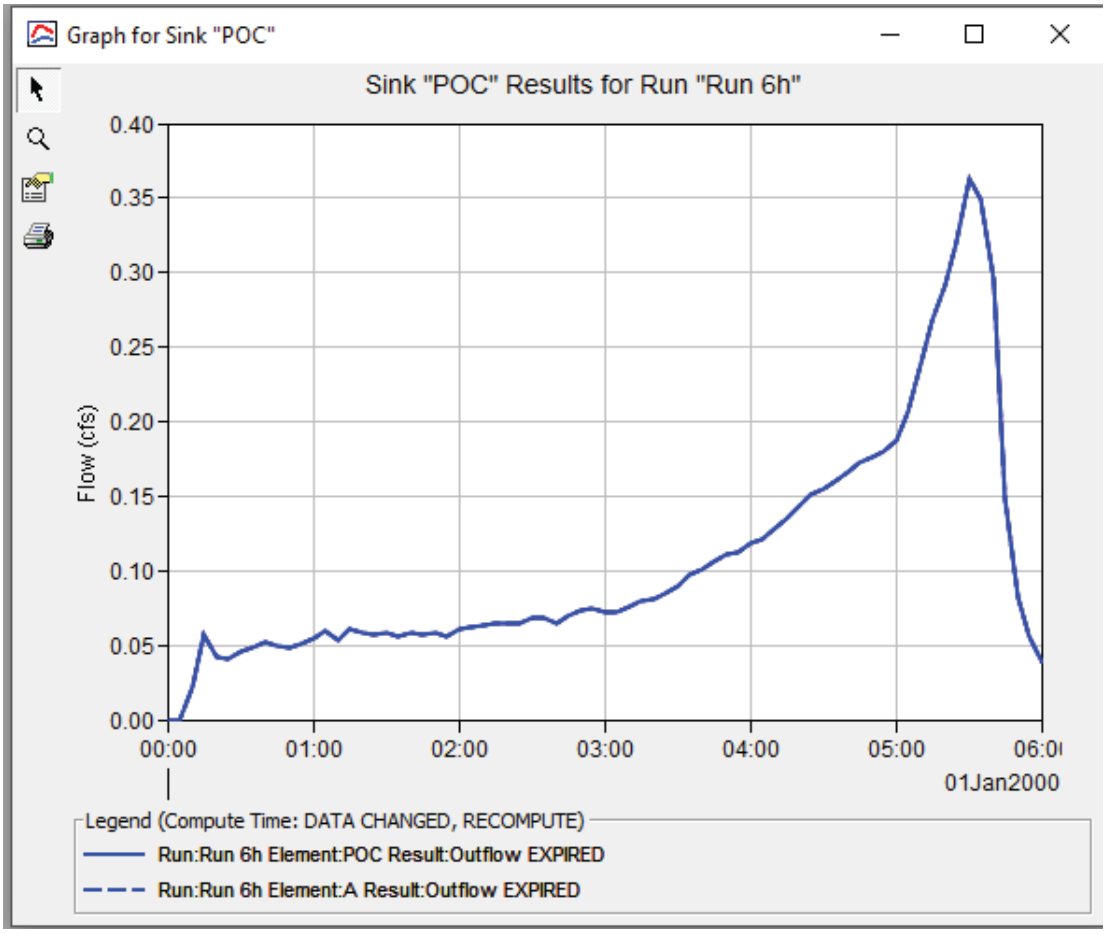
WEST POC-1


Graph for Reservoir "A1 BASIN"
Reservoir "A1 BASIN" Results for Run "Run 6h"
Storage (AC-FT)
0.005905
0.005904
0.005903
0.005902
0.005901
0.005900
0.005899
0.005898
Elev (ft)
0.500513
0.500425
0.500338
0.500250
0.500163
0.500075
0.499988
Flow (cfs)
0.08
0.06
0.04
0.02
-0.00
00:00
01:00
02:00
03:00
04:00
05:00
06:00
01Jan2000
Legend (Compute Time: DATA CHANGED, RECOMPUTE)
Run:Run 6h Element:A1 BASIN Result:Storage EXPIRED
Run:Run 6h Element:A1 BASIN Result:Pool Elevation EXPIRED
Run:Run 6h Element:A1 BASIN Result:Outflow EXPIRED
Run:Run 6h Element:A1 BASIN Result:Combined Inflow EXPIRED

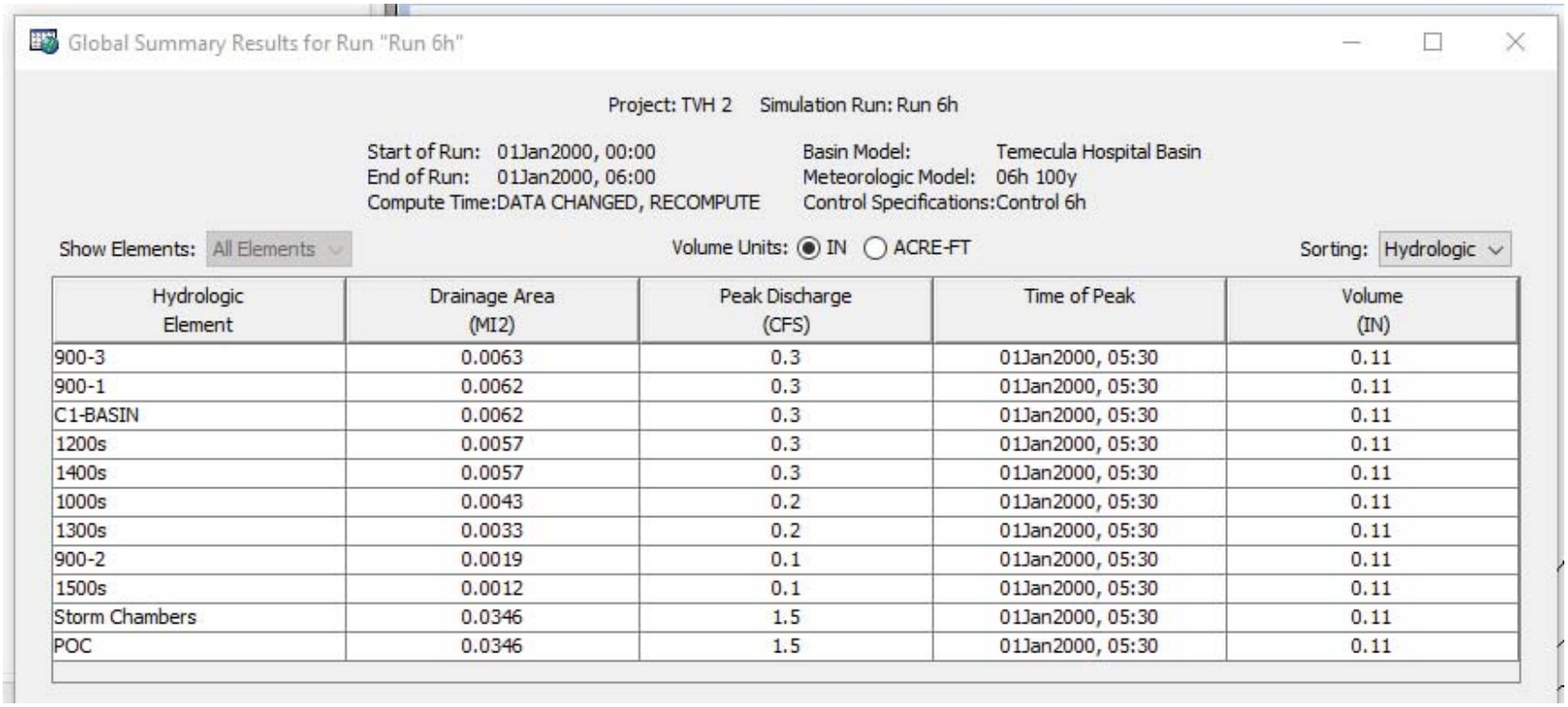

Graph for Reservoir "B BASIN"
Reservoir "B BASIN" Results for Run "Run 6h"
Storage (AC-FT)
0.005648
0.005646
0.005644
0.005642
0.005640
0.005638
Elev (ft)
0.50040
0.50020
0.50000
0.49980
0.49960
Flow (cfs)
0.08
0.06
0.04
0.02
0.00
00:00
01:00
02:00
03:00
04:00
05:00
06:00
01Jan2000
Legend (Compute Time: DATA CHANGED, RECOMPUTE)
Run:Run 6h Element:B BASIN Result:Storage EXPIRED
Run:Run 6h Element:B BASIN Result:Pool Elevation EXPIRED
Run:Run 6h Element:B BASIN Result:Outflow EXPIRED
Run:Run 6h Element:B BASIN Result:Combined Inflow EXPIRED

WEST POC-1


Graph for Reservoir "A"
Reservoir "A" Results for Run "Run 6h"
Storage (AC-FT)
0.0287
0.0286
0.0285
0.0284
0.0283
0.0282
0.0281
Elev (ft)
0.5100
0.5082
0.5063
0.5045
0.5027
0.5008
Flow (cfs)
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
00:00
01:00
02:00
03:00
04:00
05:00
06:00
01Jan2000
Legend (Compute Time: DATA CHANGED, RECOMPUTE)
Run:Run 6h Element:A Result:Storage EXPIRED
Run:Run 6h Element:A Result:Pool Elevation EXPIRED
Run:Run 6h Element:A Result:Outflow EXPIRED
Run:Run 6h Element:A Result:Combined Inflow EXPIRED


Graph for Sink "POC"
Sink "POC" Results for Run "Run 6h"
Flow (cfs)
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
00:00
01:00
02:00
03:00
04:00
05:00
01Jan2000
Legend (Compute Time: DATA CHANGED, RECOMPUTE)
Run:Run 6h Element:POC Result:Outflow EXPIRED
Run:Run 6h Element:A Result:Outflow EXPIRED

EAST POC-2



Global Summary Results for Run "Run 6h"

Project: TVH 2 Simulation Run: Run 6h

Start of Run: 01Jan2000, 00:00
End of Run: 01Jan2000, 06:00
Compute Time: DATA CHANGED, RECOMPUTE

Basin Model: Temecula Hospital Basin
Meteorologic Model: 06h 100y
Control Specifications: Control 6h

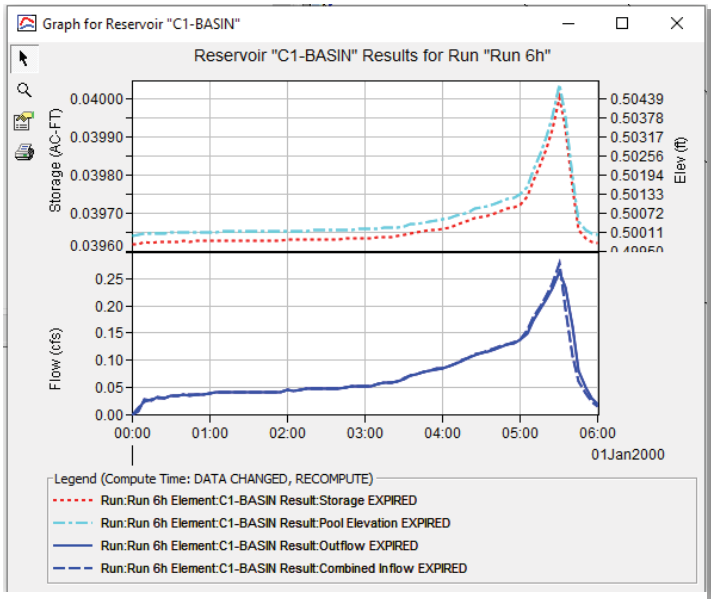
Show Elements: All Elements

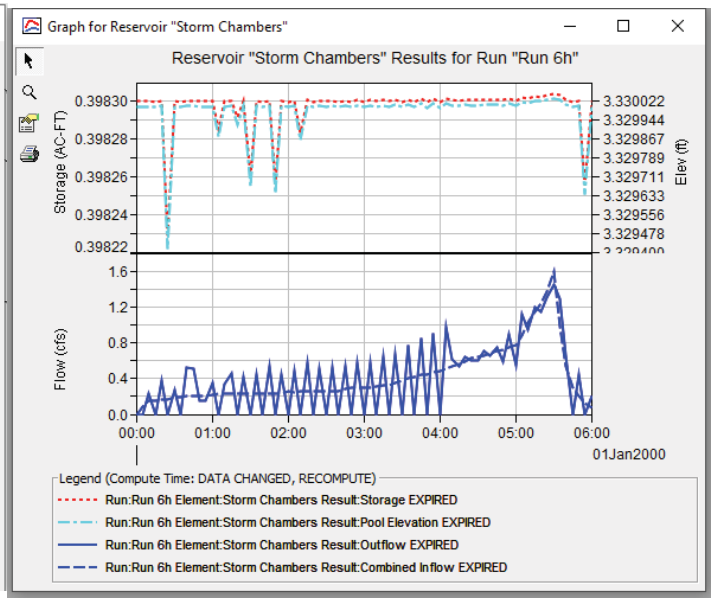
Volume Units: (•) IN ( ) ACRE-FT

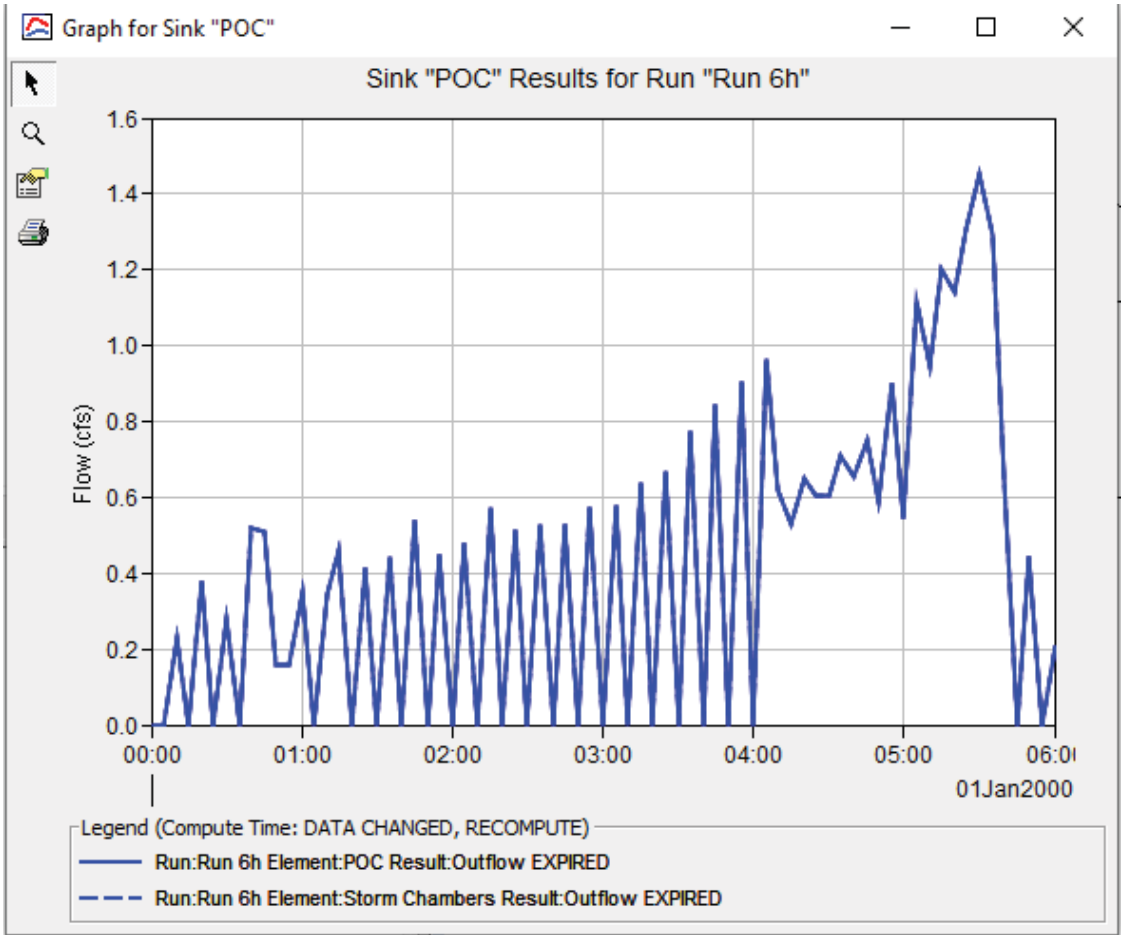
Sorting: Hydrologic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
900-3	0.0063	0.3	01Jan2000, 05:30	0.11
900-1	0.0062	0.3	01Jan2000, 05:30	0.11
C1-BASIN	0.0062	0.3	01Jan2000, 05:30	0.11
1200s	0.0057	0.3	01Jan2000, 05:30	0.11
1400s	0.0057	0.3	01Jan2000, 05:30	0.11
1000s	0.0043	0.2	01Jan2000, 05:30	0.11
1300s	0.0033	0.2	01Jan2000, 05:30	0.11
900-2	0.0019	0.1	01Jan2000, 05:30	0.11
1500s	0.0012	0.1	01Jan2000, 05:30	0.11
Storm Chambers	0.0346	1.5	01Jan2000, 05:30	0.11
POC	0.0346	1.5	01Jan2000, 05:30	0.11

EAST POC-2


Graph for Reservoir "C1-BASIN"
Reservoir "C1-BASIN" Results for Run "Run 6h"
Storage (AC-FT)
Elev (ft)
Flow (cfs)
01Jan2000
Legend (Compute Time: DATA CHANGED, RECOMPUTE)
Run:Run 6h Element:C1-BASIN Result:Storage EXPIRED
Run:Run 6h Element:C1-BASIN Result:Pool Elevation EXPIRED
Run:Run 6h Element:C1-BASIN Result:Outflow EXPIRED
Run:Run 6h Element:C1-BASIN Result:Combined Inflow EXPIRED


Graph for Reservoir "Storm Chambers"
Reservoir "Storm Chambers" Results for Run "Run 6h"
Storage (AC-FT)
Elev (ft)
Flow (cfs)
01Jan2000
Legend (Compute Time: DATA CHANGED, RECOMPUTE)
Run:Run 6h Element:Storm Chambers Result:Storage EXPIRED
Run:Run 6h Element:Storm Chambers Result:Pool Elevation EXPIRED
Run:Run 6h Element:Storm Chambers Result:Outflow EXPIRED
Run:Run 6h Element:Storm Chambers Result:Combined Inflow EXPIRED


Graph for Sink "POC"
Sink "POC" Results for Run "Run 6h"
Flow (cfs)
01Jan2000
Legend (Compute Time: DATA CHANGED, RECOMPUTE)
Run:Run 6h Element:POC Result:Outflow EXPIRED
Run:Run 6h Element:Storm Chambers Result:Outflow EXPIRED

CIVIL D EAST MITIGATED

```
        Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
    Rational Hydrology Study        Date: 05/19/22  File:eastmit.out
--------------------------------------------------------------------------
east mit



--------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

 English (in-lb) Units used in input data file

--------------------------------------------------------------------------


Program License Serial Number 6332

--------------------------------------------------------------------------
Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) =  100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [ Riverside ] area used.
10 year storm 10 minute intensity =  1.880(In/Hr)
10 year storm 60 minute intensity =  0.700(In/Hr)
100 year storm 10 minute intensity =  2.680(In/Hr)
100 year storm 60 minute intensity =  1.000(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity =  1.000(In/Hr)
Slope of intensity duration curve = 0.5500




++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      901.000 to Point/Station     1203.000
**** USER DEFINED FLOW INFORMATION AT A POINT ****
________________________________________________________________________
Rainfall intensity =      3.922(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.888
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
User specified values are as follows:
TC =   5.00 min.  Rain intensity =       3.92(In/Hr)
Total area =        22.08(Ac.)  Total runoff =      1.50(CFS)
End of computations, total study area =           22.08 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged RI index number =  69.0
```

CIVIL D WEST MITIGATED

```
1
2               Riverside County Rational Hydrology Program
3
4       CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
5           Rational Hydrology Study        Date: 05/19/22  File:westmit.out
6       ------------------------------------------------------------------------
7       west mititgation
8
9
10
11      ------------------------------------------------------------------------
12       *********   Hydrology Study Control Information **********
13
14       English (in-lb) Units used in input data file
15
16      ------------------------------------------------------------------------
17
18
19      Program License Serial Number 6332
20
21      ------------------------------------------------------------------------
22      Rational Method Hydrology Program based on
23      Riverside County Flood Control & Water Conservation District
24      1978 hydrology manual
25
26      Storm event (year) =  100.00 Antecedent Moisture Condition = 2
27
28      Standard intensity-duration curves data (Plate D-4.1)
29      For the [ Riverside ] area used.
30      10 year storm 10 minute intensity =  1.880(In/Hr)
31      10 year storm 60 minute intensity =  0.700(In/Hr)
32      100 year storm 10 minute intensity =  2.680(In/Hr)
33      100 year storm 60 minute intensity =  1.000(In/Hr)
34
35      Storm event year = 100.0
36      Calculated rainfall intensity data:
37      1 hour intensity =  1.000(In/Hr)
38      Slope of intensity duration curve = 0.5500
39
40
41
42
43
44      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
45      Process from Point/Station      101.000 to Point/Station      108.000
46      **** USER DEFINED FLOW INFORMATION AT A POINT ****
47      ________________________________________________________________________
48      Rainfall intensity =      3.922(In/Hr) for a   100.0 year storm
49      COMMERCIAL subarea type
50      Runoff Coefficient = 0.888
51      Decimal fraction soil group A = 0.000
52      Decimal fraction soil group B = 0.000
53      Decimal fraction soil group C = 1.000
54      Decimal fraction soil group D = 0.000
55      RI index for soil(AMC 2)  =  69.00
56      Pervious area fraction =  0.100; Impervious fraction =  0.900
57      User specified values are as follows:
58      TC =   5.00 min.  Rain intensity =       3.92(In/Hr)
59      Total area =         9.38(Ac.)  Total runoff =      0.40(CFS)
60      End of computations, total study area =            9.38 (Ac.)
61      The following figures may
62      be used for a unit hydrograph study of the same area.
63
64      Area averaged pervious area fraction(Ap) = 0.100
65      Area averaged RI index number =  69.0
66
67
68
```

END OF
REPORT

APPROVED REPORTS

PREVIOUSLY APPROVED WQMP REPORT WITH ATTACHED DRAINAGE STUDY

Project-Specific
Water Quality Management Plan

TEMECULA MEDICAL CENTER
31700 Temecula Parkway
Temecula, CA 92592

Parcel Nos. 959-080-001 – 959-080-004 and
959-080-007 – 959-080-010

Design Review No. PA10-0194

Prepared for:

Universal Health Services
367 South Gulph Road
King of Prussia, PA 19406
610.768.3300
William Seed, Project Manager
800.347.7750

Prepared by:

URS Corporation

Cynthia Gabaldon, P.E.,CPSWQ, CPESC
3500 Porsche Way, Suite 300
Ontario, CA 91764
909.980.4000

Margie De Laurell, P.E. Engineer/Project Manager
1950 N. Stemmons Freeway, Suite 6000
Dallas, TX 75207
214.741.7777

Bryan Paine, P.E.
2020 E. 1st Street, Suite 400
Santa Ana, CA 92705
714.835.6886

WQMP Preparation/Revision Date:
July 2007, April 2010, October 2010, December 2010, May 2011, June 2011

WATER QUALITY MANAGEMENT PLAN
CONCEPTUAL ACCEPTANCE CHECKLIST

CONCEPTUAL WQMP REQUIREMENTS	Item Addressed?		
	Yes	No	Not Applicable
V3. Treatment Control BMPs			
Table 3. Treatment Control BMPs is complete	✓		
Narrative describing all treatment control BMPs proposed for the project	✓		
Narrative describing how each individual treatment control BMP proposed for the project will be implemented and maintained, including locations, sizing criteria, inspection and maintenance frequency, inspection criteria, long-term O&M, and the responsible entity or party	✓		
Treatment Control BMPs shown on the WQMP Site Plan (Appendix B)	✓		
Section VI. Operation and Maintenance (O&M) Responsibility for Treatment Control BMPs			
Completed cost and O&M table	✓		
BMPs requiring O&M are identified	✓		
BMP start-up dates	✓		
Schedule of the frequency of O&M for each BMP	✓		
Parties responsible for O&M	✓		
Description of water quality monitoring, if required	✓		
Appendix B			
Site Plan depicting the following project features:			
Location and identification of all structural BMPs	✓		
Landscape areas	✓		
Hardscape areas	✓		
Paved areas	✓		
Number and type of structures and intended uses. (i.e.: buildings, tenant spaces, dwelling units, community facilities such as pools, recreations facilities, tot lots, etc.)	✓		
Infrastructure (i.e.: streets, storm drains)	✓		
Location of existing and proposed public and private storm drainage facilities including catch basins and other inlet/outlet structures. (Existing and proposed drainage facilities should be clearly differentiated.)	✓		
Any adjacent receiving waters that the project directly discharges into.	✓		
Discharge points where onsite or tributary offsite flows exit the site.	✓		
Proposed drainage areas boundaries, including tributary offsite areas, for each BMP and locations where flows exit the site. (Each drainage area should be clearly denoted.)	✓		

WATER QUALITY MANAGEMENT PLAN (WQMP)

INITIAL APPLICABILITY CHECKLIST

Applicant Name: UHS

Planning Application Number: PA10-0194

Project Name: Temecula Medical Center

	Does the proposed project incorporate any of the following categories? (All questions must be answered)	Yes	No
1	**Modifications to Existing Developments** – This category includes projects that create, add, or replace 5,000 sq. ft. or more of impervious surface on an already developed site. This category includes: (a) Expansion of a building footprint, or addition or replacement of a structure; (b) Increase in the gross floor area, or major exterior construction or remodeling; (c) Replacement of impervious surfaces that are not part of routine maintenance activities; (d) Land disturbing activities related to a structure or impervious surface. **Note:** If modifications create less than 50% of the impervious surface of a previously existing development, and the existing development was not originally subject to WQMP requirements, a WQMP shall be required only to the addition, and not to the entire development.		
2	**Residential Development** - This category includes subdivisions of single-family homes, multi-family homes, condominiums, and apartments consisting of 10 or more dwelling units.		
3	**Non-Residential Development** - This category includes projects where the land area for development is greater than 100,000 sq. ft.	✓	
4	**Automotive Maintenance and Repair Shops** - This category includes facilities engaged in general maintenance and mechanical repairs; body and upholstery repair; painting; transmission and exhaust repair; tire servicing; glass repair.		
5a	**Restaurants** - This category includes all eating and drinking establishments where the land area for development is greater than 5,000 sq. ft.		
5b	**Restaurants** where the land area for development is less than 5,000 sq. ft. are only required to follow the site design and source control requirements of the WQMP.		
6	**Hillside Development** – This category includes any developments that create 5,000 sq. ft. of impervious surface, are located in an area with known erosive soil conditions, and where the project will require grading natural slopes of 25% (4:1) or steeper.		
7	**Environmentally Sensitive Areas (ESAs)** – This category includes all development located within or directly adjacent to or discharging directly to an ESA which either creates 2,500 sq. ft. of impervious surface or increases the area of imperviousness by 10% or more of its naturally occurring condition. **Note:** "Directly adjacent" means within 200 feet of the ESA. "Discharging directly to" means outflow from a drainage conveyance system that is composed entirely of flows from the subject development or modification, and not commingled with flows from adjacent lands.		
8	**Parking Lots** – This category includes projects where the land area for development creates 5,000 sq. ft. or more for the temporary parking or storage of motor vehicles. This category includes parking areas associated with any of the developments outlined above. Routine maintenance, including removal and replacement, is exempt.		
9	**Streets, Roads, Highways & Freeways** – This category includes projects that create 5,000 sq. ft. or more of impervious surface for transportation of motor vehicles. Routine maintenance, including removal and replacement, is exempt.		
10	**Retail Gasoline Outlets** – This category applies if either of the following criteria is met: (a) 5,000 sq. ft. or more, or (b) a projected 'Average Daily Traffic' count of 100 or more vehicles per day.		

If you answered "YES" to any of the questions above, a project-specific Water Quality Management Plan must be prepared and submitted.

WATER QUALITY MANAGEMENT PLAN
CONCEPTUAL ACCEPTANCE CHECKLIST

CONCEPTUAL WQMP REQUIREMENTS	Item Addressed?		
	Yes	No	Not Applicable
General			
Three-Ring Binder	✓		
Tabbed Appendices	✓		
Title Page	✓		
Table of Contents	✓		
Section I. Project Description (in narrative form)			
Project location	✓		
Project size (to the nearest 1/10 acre)	✓		
Standard Industrial Classification (SIC) Code	✓		
Description and location of all buildings, proposed activities, locations of these activities, materials and products to be used and stored for each activity and at each building, delivery areas, and what kinds of wastes will be generated from each building and the entire project	✓		
Project watershed and sub-watershed	✓		
Formation of a Home Owner's or Property Owner's Association	✓		
Additional permits/approvals required for the project including: • State Department of Fish and Game, 1601 Streambed Alteration Agreement; • State Water Resources Control Board, General Construction Permit; • Regional Board, 401 Water Quality Certification; • US Army Corps of Engineers, 404 permit; • US Fish and Wildlife, Endangered Species Act section 7 biological opinion; • Municipal, grading and building permits.	✓		
Section III. Pollutants of Concern (in narrative form)			
Completed table of potential and expected pollutants, sources, and 303(d) listings	✓		
Pollutants of Concern	✓		
Legacy pollutants as a result of past uses	✓		
Section IV. Hydrologic Conditions of Concern (in narrative form)			
Condition A, B, or C.	✓		
If none, evaluation of impacts to downstream erosion or stream habitat			
Completed Storm Event surface hydrology table	✓		
Section V. Best Management Practices			
VI. Site Design BMPs			
Table 1. Site Design BMPs is complete	✓		
Narrative describing all site design BMPs proposed for the project	✓		
Explanation for each BMP NOT used and why they cannot be implemented	✓		
Site Design BMPs shown on the WQMP Site Plan (Appendix B)	✓		

WATER QUALITY MANAGEMENT PLAN
CONCEPTUAL ACCEPTANCE CHECKLIST

CONCEPTUAL WQMP REQUIREMENTS	Item Addressed?		
	Yes	No	Not Applicable
Post-project topography.	✓		
Appendix C			
Surface Hydrology report	✓		
Appendix E			
Property/project soils report and percolation test results	✓		
Appendix F			
Treatment Control BMP sizing calculations and design details	✓		
Manufacturers specs	✓		

(End of Conceptual Acceptance Checklist)

WATER QUALITY MANAGEMENT PLAN
FINAL ACCEPTANCE CHECKLIST

The purpose of this checklist is to provide a format for uniform, comprehensive, and well-documented reviews of project-specific Water Quality Management Plans (WQMPs) submitted by project owners. The completed checklist should accompany the WQMP and submitted to the City of Temecula.

SUMMARY OF WQMP REQUIREMENTS

(PLEASE LIST THE FOLLOWING INFORMATION)

Section I. Watershed and Sub-Watershed: Santa Margarita River and Temecula Creek

Section II. Land-Use Category (from Initial Checklist): Non-Residential Development

Section III. Pollutants (expected and potential): Sediment/Turbidity; Nutrients; ORGANIC Compounds; TRASH & DEBRIS; Oxygen Demanding Substances; Bacteria; Oil & GREASE; Pesticides; Metals

Section IV. Exemption Category (A, B, C, or Not Exempt): A

Section V. Treatment BMP Category(ies): Swales, Strips, infiltration basins, Sand filters, Modular Wetland Units

Section VI. Party(ies) responsible for BMP installation and maintenance: UHS

Section VII. Funding source(s) for BMP maintenance: UHS

NOTES:

(a) The WQMP will NOT be accepted unless all of the items requested throughout this checklist are completed.

(b) The Riverside County Water Quality Management Plan guideline and template can be downloaded from the City's website.

WATER QUALITY MANAGEMENT PLAN
FINAL ACCEPTANCE CHECKLIST

WQMP REQUIREMENT	Yes	No	Not Applicable
Title Page			
Name of project with Tract, Parcel, or other I.D. number	✓		
Owner/Developer name, address & telephone number	✓		
Consulting/Engineering firm, address & phone number	✓		
Preparer's Registered Professional Engineers' Stamp and Signature	✓		
Date WQMP was prepared	✓		
Certification Statements			
Signed Engineer's certification statement	✓		
Signed and notarized Owner's certification statement	✓		
Table of Contents			
Completed and includes all figures, appendices (A-H), and design worksheets	✓		
Section I. Project Description (in narrative form)			
Project location	✓		
Project size (to the nearest 1/10 acre)	✓		
Standard Industrial Classification (SIC) Code	✓		
Description and location of all buildings, proposed activities, locations of these activities, materials and products to be used and stored for each activity and at each building, delivery areas, and what kinds of wastes will be generated from each building and the entire project	✓		
Project watershed and sub-watershed	✓		
Formation of a Home Owner's Association or Property Owner's Association			✓
Additional permits/approvals required for the project including: • State Department of Fish and Game, 1601 Streambed Alteration Agreement; • State Water Resources Control Board, General Construction Permit • Regional Board, 401 Water Quality Certification; • US Army Corps of Engineers, 404 permit; • US Fish and Wildlife, Endangered Species Act section 7 biological opinion;. • Municipal, grading and building permits.	✓		
Section II. Site Characterization (in narrative form)			
Land use designation or zoning	✓		
Current and proposed property use	✓		
Soils report (Appendix E)	✓		
Phase 1 Site Assessment or summary of assessment or remediation (Appendix H)	✓		
Identification of Receiving waters (including 303(d) listed waters, Designated beneficial uses, and any RARE beneficial use waters) and their existing impairments	✓		

WATER QUALITY MANAGEMENT PLAN
FINAL ACCEPTANCE CHECKLIST

WQMP REQUIREMENT	Yes	No	Not Applicable
Section III. Pollutants of Concern (in narrative form)			
Completed table of potential and expected pollutants, sources, and 303(d) listings	✓		
Pollutants of Concern	✓		
Legacy pollutants as a result of past uses	✓		
Section IV. Hydrologic Conditions of Concern (in narrative form)			
Conditions A, B, or C.	✓		
If none, evaluation of impacts to downstream erosion or stream habitat	✓		
Completed Storm Event surface hydrology table	✓		
Section V. Best Management Practices			
V1. Site Design BMPs			
Table 1. Site Design BMPs is complete	✓		
Narrative describing all site design BMPs proposed for the project	✓		
Explanation for each BMP NOT used and why they cannot be implemented	✓		
Site Design BMPs shown on the WQMP Site Plan (Appendix B)	✓		
V2. Source Control BMPs			
Table 2. Source Control BMPs is complete	✓		
Narrative describing the source control BMPs proposed for the project	✓		
Narrative describing the source control BMPs that were NOT applicable and why they cannot be implemented	✓		
Inspection and maintenance frequency, inspection criteria, and the responsible entity or party	✓		
Structural source controls shown on the WQMP Site Plan (Appendix B)	✓		
V3. Treatment Control BMPs			
Table 3. Treatment Control BMPs is complete	✓		
Narrative describing all treatment control BMPs proposed for the project	✓		
Narrative describing how each individual treatment control BMP proposed for the project will be implemented and maintained, including locations, sizing criteria, inspection and maintenance frequency, inspection criteria, long-term O&M, and the responsible entity or party	✓		
Treatment Control BMPs shown on the WQMP Site Plan (Appendix B)	✓		
V4. Equivalent Treatment Control Alternatives			

WATER QUALITY MANAGEMENT PLAN
FINAL ACCEPTANCE CHECKLIST

WQMP REQUIREMENT	Yes	No	Not Applicable
Narrative describing equivalent treatment control alternatives			✓
Calculations for Equivalent Treatment Control Alternatives (Appendix F)			✓
V5. Regionally-Based Treatment Control BMPs			
Narrative describing regionally-based treatment control BMPs			✓
Calculations for Regionally-Based Treatment Control BMPs (Appendix F)			✓
Section VI. Operation and Maintenance (O&M) Responsibility for Treatment Control BMPs			
Completed cost and O&M table	✓		
BMPs requiring O&M are identified	✓		
BMP start-up dates	✓		
Schedule of the frequency of O&M for each BMP	✓		
Parties responsible for O&M	✓		
Description of water quality monitoring, if required	✓		
Section VII. Funding			
Signed funding certification statement	✓		
Appendix A (Section I)			
Signed copy of the final Conditions of Approval			
Appendix B (Sections I and V)			
Vicinity Map identifying the project site	✓		
Receiving Waters Map	✓		
Site Plan depicting the following project features:			
Location and identification of all structural BMPs.	✓		
Landscape areas.	✓		
Hardscape areas.	✓		
Paved areas.	✓		
Number and type of structures and intended uses. (ie: buildings, tenant spaces, dwelling units, community facilities such as pools, recreations facilities, tot lots, etc.).	✓		
Infrastructure (ie: streets, storm drains).	✓		

WATER QUALITY MANAGEMENT PLAN
FINAL ACCEPTANCE CHECKLIST

WQMP REQUIREMENT	Yes	No	Not Applicable
Location of existing and proposed public and private storm drainage facilities including catch basins and other inlet/outlet structures. (Existing and proposed drainage facilities should be clearly differentiated.)	✓		
Any adjacent receiving waters that the project directly or indirectly discharges into.	✓		
Discharge points where onsite or tributary offsite flows exit the site.	✓		
Proposed drainage areas boundaries, including tributary offsite areas, for each location where flows exit the site. (Each tributary area should be clearly denoted.)	✓		
Post-project topography.	✓		
Landscape Plans showing the structural treatment BMPs.	✓		
Appendix C (Section IV)			
Surface Hydrology report	✓		
Appendix D (Section V)			
Educational materials.	✓		
Appendix E (Sections II and V)			
Property/project soils report and percolation test results	✓		
Appendix F (Section V)			
Treatment Control BMP sizing calculations and design details	✓		
Manufacturers specs	✓		
Appendix G (Sections I and VI)			
CC&Rs, Covenant and Agreements, or other mechanisms used to ensure the ongoing operation, maintenance, funding, and transfer of the WQMP requirements	✓		
Appendix H (Section II)			
Summary of environmental site assessment or remediation, if applicable.	✓		

(End of Checklist)

Project-Specific
Water Quality Management Plan

TEMECULA MEDICAL CENTER
31700 Temecula Parkway
Temecula, CA 92592

Parcel Nos. 959-080-001 – 959-080-004 and
959-080-007 – 959-080-010

Design Review No. PA10-0194

Prepared for:

Universal Health Services
367 South Gulph Road
King of Prussia, PA 19406
610.768.3300
William Seed, Project Manager
800.347.7750

Prepared by:

URS Corporation

Cynthia Gabaldon, P.E.,CPSWQ, CPESC
3500 Porsche Way, Suite 300
Ontario, CA 91764
909.980.4000

Margie De Laurell, P.E. Engineer/Project Manager
1950 N. Stemmons Freeway, Suite 6000
Dallas, TX 75207
214.741.7777

Bryan Paine, P.E.
2020 E. 1st Street, Suite 400
Santa Ana, CA 92705
714.835.6886

WQMP Preparation/Revision Date:
July 2007, April 2010, October 2010, December 2010, May 2011, June 2011

INTENTIONALLY BLANK

OWNER'S CERTIFICATION

This project-specific Water Quality Management Plan (WQMP) has been prepared for Universal Health Services by URS Corporation for the project known as the Temecula Medical Center located at 31700 Temecula Parkway, Temecula, California 92592.

This WQMP is intended to comply with the requirements of the City of Temecula for Assessor's Parcel Numbers 959-080-001 through 959-080-004 and 959-080-007 through 959-080-010, which includes the requirement for the preparation and implementation of a project-specific WQMP.

The undersigned, while owning the property/project described herein, shall be responsible for the implementation of this WQMP and will ensure that this WQMP is amended as appropriate to reflect up-to-date conditions on the site. This WQMP will be reviewed with the facility operator, facility supervisors, employees, tenants, maintenance and service contractors, or any other party (or parties) having responsibility for implementing portions of this WQMP. At least one copy of this WQMP will be maintained at the project site or project office in perpetuity.

The undersigned is authorized to certify and to approve implementation of this WQMP. The undersigned is aware that implementation of this WQMP is enforceable under the City of Temecula Water Quality Ordinance (Municipal Code Section 8.25.500) and the NPDES Permit for Waste Discharge Requirements for the County of Riverside, Riverside County Flood Control District and the incorporated cities of Riverside County within the Riverside County Water Quality Management Program.

If the undersigned transfers its interest in the subject property/project, its successor in interest the undersigned shall notify the successor in interest of its responsibility to implement this WQMP.

"I, the undersigned, certify under penalty of law that the provisions of this WQMP have been reviewed and accepted and that the WQMP will be transferred to future successors in interest."

Owner's Signature

5-25-11
Date

William R. Seed
Owner's Printed Name

V.P. Design & Construction
Owner's Title/Position

Universal Health Services
Contact: William Seed
367 South Gulph Road
King of Prussia, PA 19406
800.347.7750

2008 All Capacity Acknowledgment

STATE OF California

COUNTY OF Riverside

On 5-25-2011 (Date) before me, Christopher Andrew Clark, Notary Public (Name and title of the officer)

personally appeared William R. Seed (Name of person signing), who proved to me on the basis of satisfactory evidence to be the person~~(s)~~ whose name~~(s)~~ is/~~are~~ subscribed to the within instrument and acknowledged to me that he/~~she/they~~ executed the same in his/~~her/their~~ authorized capacity~~(ies)~~, and that by his/~~her/their~~ signature~~(s)~~ on the instrument the person~~(s)~~, or the entity upon behalf of which the person~~(s)~~ acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature of officer

(Seal)

CHRISTOPHER ANDREW CLARK
Commission # 1899639
Notary Public - California
Riverside County
My Comm. Expires Aug 14, 2014

ENGINEER'S CERTIFICATION

"I certify under penalty of law that this document and all attachments and appendices were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted."

Cynthia Gabaldon — 5/20/11

Engineer's Signature — Date



Engineer's Seal

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A. Conditions of Approval
B. Vicinity Map, Receiving Waters Map, and WQMP Site Plan
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D. Educational Materials
E. Soils Report – Percolation Testing Memorandum (URS, March 2010)
F. Treatment Control BMP Sizing Calculations and Design Details
G. Water Quality Management Plan and Stormwater BMP Transfer, Access, and Maintenance Agreement
H. Phase 1 Environmental Site Assessment – Summary of Site Remediation Conducted and Use Restrictions (Not Applicable)

I. PROJECT DESCRIPTION

Instructions:
The project description shall be completely and accurately described in narrative form. In the field provided on page A-3, describe and with supporting figures (maps or exhibits), where facilities will be located, what activities will be conducted and where, what kinds of materials will be used and/or stored, how and where materials will be delivered, and the types of wastes that will be generated. The following information shall be described and/or addressed in the "Project Description" section of the project specific WQMP:

- Project owner and WQMP preparer;
- Project location;
- Project size;
- Standard Industrial Classification (SIC), if applicable;
- Location of facilities;
- Activities and location of activities;
- Materials Storage and Delivery Areas;
- Wastes generated by project activities.

Project Owner:	Universal Health Services 367 South Gulph Road King of Prussia, PA 19406 Telephone: 610.768.3300 Mr. William Seed
WQMP Preparer:	URS Corporation 3500 Porsche Way, Ste 300 Ontario, CA 91764 909.980. 4000 Cynthia Gabaldon, PE, CPSWQ, CPESC, QSD 1950 N. Stemmons Freeway, Suite 6000 Dallas, Texas 75207 214.741.7777 Margie De Laurell, PE
Project Site Address:	31700 Temecula Parkway Temecula, California, 92592
Planning Area/ Community Name:	Temecula Medical Center
APN Number(s):	959-080-001 through 959-080-004 959-080-007 through 959-080-010
Thomas Bros. Map:	Page 979, Grid D2 & E2, Version 2008
Project Watershed:	Santa Margarita River (902)
Sub-watershed:	Temecula Creek (902.51)

Project Site Size:	Gross: 35.8 acres Net (impervious): approx 25 acres
Standard Industrial Classification (SIC) Code:	8062, General Medical and Surgical Hospitals Establishments primarily engaged in providing general medical and surgical services and other hospital services.
Formation of HOA or POA[1]:	No, UHS Operations and Maintenance Department will manage site specific operations and maintenance. There is an Operations Manual that will be developed for the Owner's managing staff that will include the BMP needs.

[1] Home Owners Association (HOA) and Property Owners Association (POA)

Additional Permits or Approvals required for the Project:

AGENCY	PERMIT REQUIRED (YES or NO)
California Department of Fish and Game, 1601 Streambed Alteration Agreement	NO
Regional Water Quality Control Board, Clean Water Act (CWA) §401 Water Quality Certification	YES
US Army Corps of Engineers, CWA §404 permit	YES
US Fish and Wildlife, Endangered Species Act §7 biological opinion	YES
Other (please list in the space below as required)	
State Water Resources Control Board – Construction General Permit	YES
City of Temecula – Building Permit	YES
City of Temecula – Grading Permit	YES

This WQMP is designed to provide for both the overall build-out and Phase I specific development.

The name of this project is the Temecula Medical Center. The property owner is Universal Health Services and this project-specific Water Quality Management Plan has been prepared by URS Corporation. The project site is approximately 35.8 acres at address 31700 Temecula Parkway in the City of Temecula, Riverside County, California along the north side of Temecula Parkway, south of DePortola Road, east of Dona Lynora Road and approximately 700 feet west of Margarita Road. At build-out, the project will include a 320-bed Hospital Building, two Medical Office Buildings, a Cancer Treatment Center, a Fitness Center and a helipad. Related appurtenant structures include support mechanical facilities (emergency generators, transformers, fuel tank, bulk oxygen storage tank) and loading dock.

Site information includes:

Overall Acreage: 1,559,448 sq. ft

Total building: 566,160 sq. ft

Total landscaping: 512,734 sq, ft

Total hardscape: 33,475 sq ft

Total parking/driveways: 467,968 sq ft

Appendix A of this project-specific WQMP includes a complete copy of the final Conditions of Approval.

Location of New Buildings & Proposed Activities

The Hospital Building will face Temecula Parkway and be situated just east of the site center. The two Medical Office Buildings will be to the west of the Hospital Building, the Cancer Treatment Center will be to the east, and the Fitness Center will be to the north. The helipad is

proposed to be near the northeast corner of the Hospital Building, just north of the Cancer Treatment Center. Support mechanical facilities will be located at the northwest corner of the main Hospital building. This area will provide the infrastructure required to support a hospital such as a loading dock, emergency generators, transformers, fuel tank and bulk oxygen storage tank. A loading dock area will be along the north end of the east side of the Hospital Building. An unpaved jogging and horse trail will be constructed along the northern edge of the property.

This site will also have approximately 1,278 surface parking spaces, including 82 spaces for handicap parking. Landscaping shall be provided in the form of berms and shrubs along the frontage of DePortola Drive and Temecula Parkway. Landscaping throughout the site shall be placed in parking islands, medians, and around the hospital and medical office buildings.

This project will also include off-site improvements to Temecula Parkway, DePortola Road and Dona Lynora Road. Improvements to Temecula Parkway will include the construction of a west bound right turn lane into the site and a Riverside Transit Authority bus turn in lane along the north side of the road. There will also be some modifications to an existing traffic signal located at Temecula Parkway and County Glen Way as well as the traffic signal at the intersection of Temecula Parkway and Margarita Road/Redhawk Parkway. Improvements to DePortola Road will include the construction of a half-street using a cross section of a modified secondary arterial (4 lane separated). Construction activity for Dona Lynora will include the completion of the existing right driving lane and right side curb and gutter.

Agency Permits

Army Corp of Engineers

The United States Army Corps of Engineers included these additional requirements per their letter dated September 30, 2011:

The Permittee shall clearly mark the limits of the workspace with flagging or similar means to ensure mechanized equipment does not enter preserved waters of the U.S. and riparian wetland/habitat areas. Adverse impacts to waters of the U.S. beyond the Corps-approved construction footprint are not authorized. Such impacts could result in permit suspension and revocation, administrative, civil or criminal penalties, and/or substantial, additional, compensatory mitigation requirements.

Regional Water Quality Control Board

Per the Regional Water Quality Control Board's letter, file no. 11C-031 and dated September 26, 2011, the following post-construction BMPs are required for this project:

- All storm drain inlet structures within the project boundaries must be stamped and/or stenciled with appropriate language prohibiting non-storm water discharges.
- Universal Health Services, Inc. must conduct the following for all post-construction BMPs and storm water discharge points:
    - BMPs must be installed prior to occupancy
    - Regularly inspect and maintain post-construction BMPs for the life of the project.

- No less than one time per year assess the performance of the BMPs
- Have all preventive and corrective maintenance performed
- Inspect all post-construction BMPs and storm water discharge points no less than once per year, prior to the rainy season, and after each storm event exceeding 0.5 inches
- Maintain a log documenting the BMP inspections and maintenance activities

California Department of Fish and Game

The California Department of Fish and Game has given clearance to begin construction without an Agreement, per their letter dated August 1, 2011. In order to proceed with the project, pursuant to Fish and Game Code section 1602 (a)(4)(D), the project must be the same as described and conducted in the same manner as specified in the notification. Any modifications to that notification must be submitted to the Department in writing.

Loading and Unloading Areas & Outdoor Storage Areas

There are no planned outdoor storage areas and outdoor storage of materials is not anticipated.

Loading dock activities will include the delivery of supplies, equipment, and food service. Deliveries shall be limited to four (4) times per day between the hours of 7:00am and 6:00pm.

No car washing, auto repair and/or vehicle fueling will be conducted at this facility.

Activity-Specific Wastes Generated

Waste generated by this project after construction will include, but is not limited to, typical business office trash, packaging waste, food waste, food containers, biomedical waste, and landscaping waste.

Phase I Development

Of the overall proposed project, in Phase I, only one Hospital Building (140 beds) is planned for completion. Related appurtenant structures include the support mechanical facilities (emergency generators, transformers, fuel tank, bulk oxygen storage tank) and loading dock will also be completed in this phase. As only one primary building will be completed in Phase I, only two parking lots and the required driveways will be constructed in Phase I.

- A Vicinity Map identifying the project site and surrounding planning areas in sufficient detail to allow the project site to be plotted on Co-Permittee base mapping; and
- A Site Plan for the project. The Site Plan included as part of Appendix B depicts the following project features:
  - Location and identification of all structural BMPs, including Treatment Control BMPs.
  - Landscaped areas.
  - Paved areas and intended uses (i.e., parking, outdoor work area, outdoor material storage area, sidewalks, patios, tennis courts, etc.).
  - Number and type of structures and intended uses (i.e., buildings, tenant spaces, dwelling units, community facilities such as pools, recreation facilities, tot lots, etc.).
  - Infrastructure (i.e., streets, storm drains, etc.) that will revert to public agency ownership and operation.
  - Location of existing and proposed public and private storm drainage facilities (i.e., storm drains, channels, basins, etc.), including catch basins and other inlets/outlet structures. Existing and proposed drainage facilities should be clearly differentiated.
  - Location(s) of Receiving Waters to which the project directly or indirectly discharges.
  - Location(s) of points where onsite (or tributary offsite) flows exit the property/project site.
  - Proposed drainage areas boundaries, including tributary offsite areas, for each location where flows exits the property/project site. Each tributary area should be clearly denoted.
  - Pre- and post-project topography.

Appendix G of this project-specific WQMP shall include copies of CC&Rs, Covenant and Agreements, and/or other mechanisms used to ensure the ongoing operation, maintenance, funding, transfer and implementation of the project-specific WQMP requirements.

II. SITE CHARACTERIZATION

Land Use Designation/Zoning:	PLANNED DEVELOPMENT OVERLAY-9 (PDO-9)
Current Property Use:	Undeveloped
Proposed Property Use:	Temecula Hospital Planned Development Overlay (PDO-9)
Availability of Soils/Percolation Testing Report:	Yes, see Appendix E.
Phase 1 Site Assessment:	No. The site is not included on the Department of Toxic Substance Control Hazardous Waste and Substances List (Cortese List). In addition, a review of historical site data indicates that there is no current or historic use of the site that would have resulted in a release of hazardous waste.

This site is currently undeveloped. Until recently there were three (3) single family homes to the north on the property facing DePortola Road. These homes have been demolished.

Instructions:

On the following page, list in order of upstream to downstream, the receiving waters that the project is tributary to. Continue to fill each row with the receiving water's 303(d) listed impairments, designated beneficial uses, and proximity, if any, to a RARE beneficial use. All of the impairments listed are scheduled as TMDLs between 2019 and 2021.

Receiving Waters for Urban Runoff from Site

Receiving Waters	303(d) List Impairments[1]	Designated Beneficial Uses[2]	Proximity to RARE Beneficial Use
Temecula Creek HU 2.52	Chlorpyrifos Copper Phosphorus Total Dissolved Solids Toxicity	MUN, AGR, IND, PROC, GWR, REC2, WARM, WILD	Not a RARE Waterbody; ¼ mile from site
Santa Margarita River (Upper) HU 2.22, 2.21	Phosphorus, Toxicity	MUN, AGR, IND, REC1, REC2, WARM, COLD, WILD, RARE	Not a RARE Waterbody; 2 miles
Santa Margarita River (Lower) HU 2.13,2.12,2.11	Enterococcus Fecal Coliform Phosphorus Total Nitrogen as N	MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD, RARE	Not a RARE Waterbody; 17 miles
Santa Margarita Lagoon HU 2.11	Eutrophic	REC1, REC2, EST, WILD, RARE, MAR, MIGR, SPWN	Not a RARE Waterbody; 28 miles

Pacific Ocean	None	IND, NAV, REC1, REC2, COMM, BIOL, WILD, RARE MAR, AQUA, MIGR, SPWN, SHELL	Not a RARE Waterbody ;29 miles

1. USEPA. 2010 CWA Section 303(d) List of Water Quality Limited Segments Requiring TMDLs. San Diego RWQCB.
2. Definitions of the acronyms for beneficial uses are defined in Chapter 2 of the San Diego Basin Plan that can be viewed or downloaded from http://www.swrcb.ca.gov/rwqcb9/water_issues/programs/basin_plan/docs/update102207/chapter2_042507.pdf

III. POLLUTANTS OF CONCERN

Potential pollutants associated with Urban Runoff from the proposed project must be identified. Exhibit B of the WQMP provides brief descriptions of typical pollutants associated with Urban Runoff and a table that associates typical potential pollutants with types of development (land use). It should be noted that at the Co-Permittees discretion, the Co-Permittees may also accept updated studies from the California Association of Stormwater Quality Agencies (CASQA), USEPA, SWRCB and/or other commonly accepted agencies/associations acceptable to the Co-Permittee for determination of Pollutants of Concern associated with given land use. Additionally, in identifying Pollutants of Concern, the presence of legacy pesticides, nutrients, or hazardous substances in the site's soils as a result of past uses and their potential for exposure to Urban Runoff must be addressed in project-specific WQMPs. The Co-Permittee may also require specific pollutants commonly associated with urban runoff to be addressed based on known problems in the watershed. The list of potential Urban Runoff pollutants identified for the project must be compared with the pollutants identified as causing an impairment of Receiving Waters, if any. To identify pollutants impairing proximate Receiving Waters, each project proponent preparing a project-specific WQMP shall, at a minimum, do the following:

a. For each of the proposed project discharge points, identify the proximate Receiving Water for each discharge point, using hydrologic unit basin numbers as identified in the most recent version of the Water Quality Control Plan for the Santa Ana River Basin or the San Diego Region.

b. Identify each proximate identified above that is listed on the most recent list of Clean Water Act Section 303(d) list of impaired water bodies, which can be found at website www.swrcb.ca.gov/tmdl/303d_lists.html. List all pollutants for which the proximate Receiving Waters are impaired.

c. Compare the list of pollutants for which the proximate Receiving Waters are impaired with the pollutants expected to be generated by the project.

Urban Runoff Pollutants: Insert potential stormwater pollutants associated with project type as presented in Exhibit B of Riverside County WQMP. Additionally, any other potential stormwater pollutants that are project-specific must also be identified.

There will be two discharge points from the site for this project. The first discharge point is an existing, small, natural drainage ditch in the northwest corner of the property at the culvert (Watershed A). The second discharge point is also an existing drainage ditch along the eastern edge of the property which discharge through a culvert at Temecula Parkway (Watershed B). The receiving water for both points of discharge will be Temecula Creek. Temecula Creek flows to the Upper Santa Margarita River, to the Lower Santa Margarita River, and then ultimately into the Santa Margarita Lagoon and Pacific Ocean.

The 2010 Clean Water Act, § 303(d) list of impaired water bodies includes:

- Temecula Creek is listed as impaired for Chlorpyrifos, Copper, Phosphorus, Total Dissolved Solids, Toxicity
- The Upper Santa Margarita River is listed as impaired for phosphorus and toxicity
- The Lower Santa Margarita River is listed as impaired for Enterococcus, Fecal Coliform, Phosphorus, Total Nitrogen as N
- The Santa Margarita Lagoon is listed as impaired for eutrophic conditions

Legacy Pollutants: No legacy pollutants are associated with this site as described in the Final EIR and Supplemental EIR prepared for this project.

Project's Potential Pollutants: The potential pollutants associated with Urban Runoff for this project have been identified using Exhibit B (Potential Pollutants Generated by Land Use Type) of the Riverside County Water Quality Management Plan. The Land Use Types considered in identifying the project's potential pollutants were (1) Commercial/Industrial Development and (2) Parking Lots.

Temecula Creek is listed on the 2010 Clean Water Act Section 303 (d) List of Water Quality Limited Segments as being impaired by Phosphorusand Total Dissolved Solids. As such, these pollutants are the Pollutants of Concern for this project.

Pollutant Category	Potential for Project	Potential Source	303(d) Listing	Project Pollutant of Concern
Sediment/Turbidity	Yes	Parking Lot & Landscape Runoff	No	No
Nutrients	Yes	Horse Manure from Trail; Fertilizers & Landscape Runoff	Yes	Yes
Organic Compounds	Yes	Parking Lot	No	No
Trash & Debris	Yes	Parking Lot / Trash Receptacles	No	No
Oxygen Demanding Substances	Yes	Landscaping Runoff	No	No
Bacteria & Viruses	Yes	Pavement Runoff	No	No
Oil & Grease	Yes	Parking Lot Runoff	No	No
Pesticides	Yes	Landscape Runoff	No	No
Metals	Yes	Parking Lot	No	No

TDS is not expected on this site. Primary sources of TDS include agricultural and residential runoff, leaching of soil contamination and point source discharges from treatment plants. The landscaping on this site is specifically designed for minimal fertilizer and pesticide usage and runoff as drought tolerant plantings are required.

IV. HYDROLOGIC CONDITIONS OF CONCERN

Impacts to the hydrologic regime resulting from the Project may include increased runoff volume and velocity; reduced infiltration; increased flow frequency, duration, and peaks; faster time to reach peak flow; and water quality degradation. Under certain circumstances, changes could also result in the reduction in the amount of available sediment for transport; storm flows could fill this sediment-carrying capacity by eroding the downstream channel. These changes have the potential to permanently impact downstream channels and habitat integrity. A change to the hydrologic regime of a Project's site would be considered a hydrologic condition of concern if the change would have a significant impact on downstream erosion compared to the pre-development condition or have significant impacts on stream habitat, alone or as part of a cumulative impact from development in the watershed.

This project-specific WQMP must address the issue of Hydrologic Conditions of Concern unless one of the following conditions is met:

- Condition A: Runoff from the Project is discharged directly to a publicly-owned, operated and maintained MS4; the discharge is in full compliance with Co-Permittee requirements for connections and discharges to the MS4 (including both quality and quantity requirements); the discharge would not significantly impact stream habitat in proximate Receiving Waters; and the discharge is authorized by the Co-Permittee.

- Condition B: The project disturbs less than 1 acre. The disturbed area calculation should include all disturbances associated with larger plans of development.

- Condition C: The project's runoff flow rate, volume, velocity and duration for the post-development condition do not exceed the pre-development condition for the 2-year, 24-hour and 10-year 24-hour rainfall events. This condition can be achieved by minimizing impervious area on a site and incorporating other site-design concepts that mimic pre-development conditions. This condition must be substantiated by hydrologic modeling methods acceptable to the Co-Permittee.

Condition A is applicable to this Project. A drainage report[2] was prepared for the project and was submitted to the City as part of the plan submittal process._ The following paragraphs present a summary of findings from the drainage report.

There are three main drainage patterns within the project site—eastern, western and offsite. Approximately two-thirds of the site slopes generally to the south and east, which will be conveyed to the box culvert in the southeast corner of the site. Immediately upstream of this box culvert is an on-site drainage channel maintained by the Riverside County Flood Control & Water Conservation District (RCFC&WCD); none of the site drainage will be collected in the drainage channel. The remaining one-third of the site slopes generally to the north and west to an existing drainage culvert adjacent to the northwest corner of the site.

[2] URS Corporation. 2010. Drainage Study Hydrology / Hydraulic Report Temecula Medical Center. December 2007, Revised July 2008, Revised April 2010, Revised December 2010.

The off-site flow is from De Portola Road and portions of the residential development north of the site. It is collected by a grate inlet, pipe, and concrete flume structure immediately east of the intersection of De Portola and Pio Pico Roads. The runoff is not being treated and it is conveyed through the site in a 24-inch reinforced concrete pipe to the existing RCFC&WCD drainage channel. The 24-inch reinforced concrete pipe does not convey any of the site runoff.

The drainage reports by developers[3,4] of surrounding properties as well as the County have included this site in its ultimate condition.

For the western watershed, approximately 12.6 acres of the hospital land was included in this study. Using a Soil Type C, a commercial development type, and a time of concentration of 21.57 minutes, the developed condition Q_{100} value was determined to be 26.10 cfs.

The eastern watershed was also previously analyzed as part of the master drainage study for the tributaries to the Temecula Creek Channel. This study accounted for the developed condition as 100-year peak runoff entering the existing, unnamed trapezoidal channel along the eastern edge of the property from the subject site. Approximately 19.3 acres of the hospital land was included in this study. Using a Soil Type C, a commercial development type, and a time of concentration of 20.07 minutes, the developed condition Q_{100} value was determined in this previous study to be 63.59 cfs.

There are significant differences between the existing and proposed site conditions making the analysis for pre- and post- condition comparisons difficult. Segregated summaries are presented in the following tables.

Existing conditions were calculated and summarized in the following table:

LOCATION	Q_2 cfs	Q_{10} cfs	Q_{100} cfs
Southeast portion (subareas A)	11.34	19.51	30.06
Western portion (Subareas B&C)	5.99	10.24	15.33
Northeast portion (Subareas D)	7.11	11.98	17.87

For the proposed conditions the following analysis is presented, noting that the subareas are not identical to the existing conditions.:

[3] Temecula Engineering Consultants, Inc. (TEC). May 2004. Drainage Report – Hydrology and Hydraulics Study of Storm Drain through Rancho Community Church Campus (RCCC) and Bridgeport Development to Temecula Parkway and Jedediah Smith Road.

[4] RANPAC Engineering Corporation. February 1983. Drainage Study – Ranch Villages Assessment, District No. 159, Hydraulic Calculations for Ultimate Conditions for Line "V."

	2-YR & 10-YR STORM EVENT – WEST WATERSHED					
	2-YEAR		10-YEAR			
	Pre-Development (URS Study)	Ult/ Phase 1 Development (URS Study)	Pre-Development (URS Study)	Pre-Development (TEC Study)	Post Development (TEC Study)	Ult/Phase 1 Development (URS Study)
Q (cfs)	8.18	12.6/10.2	13.99	13.00	17.07	19.1/16.1
Velocity (ft/sec)	1.83	1.90/2.08	2.06	1.75	3.10	2.20/2.43
Area (acre)	10.55	8.78/8.77	10.55	11.11	12.60	8.78/8.77
Duration (minutes)	16.59	12.06/16.88	16.59	20.73	22.06	11.64/15.53

	2-YR & 10-YR STORM EVENT – EAST WATERSHED			
	2-YEAR		10-YEAR	
	Pre-Development (URS Study)	Ult/Phase 1 Development (URS Study)	Pre-Development (URS Study)	Ult/Phase 1Development (URS Study)
Q (cfs)	18.45	23.7/20.5	31.49	35.9/31.9
Velocity (ft/sec)	3.53	2.90/-	4.01	3.16/-
Area (acre)	24.67	24.02/23.69	24.67	24.02/23.69
Duration (minutes)	21.56	10.96/20.87	21.33	10.56/20.40

From an HCOC perspective, the increases in flows are minimal ranging from .41 cfs for the Phase I, 10-year delta value to 5.25 cfs for the Ultimate build-out, 2-year delta value. These values are representing flows without BMP management. The proposed BMPs are designed to manage the increase in flows therefore mitigating the HCOCs.

	100-YR STORM EVENT – WEST WATERSHED				
	Pre-Development (TEC Study)	Pre-Development (URS Study)	Post Development (TEC Study)	Updated Post Development (TEC Study)	Ult/Phase 1 Development (URS Study)
Q (cfs)	20.95	21.09	26.10	20.70	28.6/24.8
Velocity (ft/sec)	1.98	2.28	3.48	3.10	2.51/2.80
Area (acre)	11.11	10.55	12.60	10.60	8.78/8.77
Duration (minutes)	20.20	16.59	21.57	22.00	11.22/14.44

	100-YEAR STORM EVENT – EAST WATERSHED			
	Pre-Development (RANPAC)	Pre-Development (URS Study)	Post Development (RANPAC)	Ult/Phase 1 Development (URS Study)
Q (cfs)	60.27	47.93	63.59	53.1/48.2
Velocity (ft/sec)	13.65	4.43	7.77	4.23/3.84
Area (acre)	23.30	24.67	23.80	24.02/23.69
Duration (minutes)	14.14	21.17	20.07	10.15/20.25

V. BEST MANAGEMENT PRACTICES

V.1 Site Design BMPs

V.1 SITE DESIGN BMPS

Project proponents shall implement Site Design concepts that achieve each of the following:

1) Minimize Urban Runoff
2) Minimize Impervious Footprint
3) Conserve Natural Areas
4) Minimize Directly Connected Impervious Areas (DCIAs)

The project proponent should identify the specific BMPs implemented to achieve each Site Design concept and provide a brief explanation for those Site Design concepts considered not applicable.

Instructions:

In field below, provide narrative describing which site design concepts were incorporated into project plans. If the project proponent implements a Co-Permittee approved alternative or equally-effective Site Design BMP not specifically described below, the Site Design BMP checkbox in Table I should be marked and an additional description indicating the nature of the BMP and how it addresses the Site Design concept should be provided. Continue with completion of Table 1.

Note: *The Co-Permittees general plan or other land use regulations/documents may require several measures that are effectively site design BMPs (such as minimization of directly connected impervious areas and/or setbacks from natural stream courses). The Project Proponent should work with Co-Permittee staff to determine if those requirements may be interpreted as site design BMPs for use in this table/narrative. See Section 4.5.1 of the WQMP for additional guidance on Site Design BMPs.*

Following Table 1: if a particular Site Design BMP concept is found to be not applicable, please provide a brief explanation as to why the concept cannot be implemented. Also include descriptions explaining how each ***included*** *BMP will be implemented. In those areas where Site Design BMPs require ongoing maintenance, the inspection and maintenance frequency, the inspection criteria, and the entity or party responsible for implementation, maintenance, and/or inspection shall be described. The location of each Site Design BMP must also be shown on the WQMP Site Plan included in Appendix B.*

Insert text here describing site design concepts incorporated into project plans.

Table 1. Site Design BMPs

Design Concept	Technique	Specific BMP	Included			Brief Reason for BMPs Denoted as No or N/A
			Yes	No	N/A	
Site Design Concept 1	*Minimize Urban Runoff*	Maximize the permeable area	X			
		Incorporate landscaped buffer areas between sidewalks and streets.	X			
		Maximize canopy interception and water conservation by preserving existing native trees and shrubs, and planting additional native or drought tolerant trees and large shrubs.	X			
		Use natural drainage systems.	X			
		Where soils conditions are suitable, use perforated pipe or gravel filtration pits for low flow infiltration.	X			
		Construct onsite ponding areas or retention facilities to increase opportunities for infiltration consistent with vector control objectives.	X			
Site Design Concept 2	Minimize Impervious Footprint	Maximize the permeable area.	X			
		Construct walkways, trails, patios, overflow parking lots, alleys, driveways, low-traffic streets and other low -traffic areas with open-jointed paving materials or permeable surfaces, such as pervious concrete, porous asphalt, unit pavers, and granular materials.		X		*This item was considered and was not deemed cost effective by the owner.*
		Construct streets, sidewalks and parking lot aisles to the minimum widths necessary, provided that public safety and a walk able environment for pedestrians are not compromised.	X			
		Reduce widths of street where off-street parking is available.		X		*Streets were designed with the minimum required widths.*
		Minimize the use of impervious surfaces, such as decorative concrete, in the landscape design.	X			

Design Concept	Technique	Specific BMP	Included			Brief Reason for BMPs Denoted as No or N/A
			Yes	No	N/A	
Site Design Concept 3	Conserve Natural Areas	Maximize canopy interception and water conservation by preserving existing native trees and shrubs, and planting additional native or drought tolerant trees and large shrubs.	X			*The landscape architect has provided the necessary landscaping required and has used native and drought resistant trees and shrubs.*
		Use natural drainage systems.	X			*The natural drainage system to the east of the site will be maintained and utilized for on-site runoff.*
Site Design Concept 4	Minimize Directly Connected Impervious Areas	Residential and commercial sites must be designed to contain and infiltrate roof runoff, or direct roof runoff to vegetative swales or buffer areas, where feasible.	X			
		Where landscaping is proposed, drain impervious sidewalks, walkways, trails, and patios into adjacent landscaping.	X			
		Increase the use of vegetated drainage swales in lieu of underground piping or imperviously lined swales.	X			
		Rural swale system: street sheet flows to vegetated swale or gravel shoulder, curbs at street corners, culverts under driveways and street crossings.			X	*Rural swale systems are not applicable for this commercial development.*
		Urban curb/swale system: street slopes to curb; periodic swale inlets drain to vegetated swale/biofilter.	X			
		Dual drainage system: First flush captured in street catch basins and discharged to adjacent vegetated swale or gravel shoulder, high flows connect directly to MS4s.			X	*This is not feasible for this project.*
		Design driveways with shared access, flared (single lane at street) or wheel strips (paving only under tires); or, drain into landscaping prior to discharging to the MS4.			X	*This is not applicable for a commercial development.*
		Uncovered temporary or guest parking on private residential lots may be paved with a permeable surface, or designed to drain into landscaping prior to discharging to the MS4.			X	*This is not a private residential lot.*
		Where landscaping is proposed in parking areas, incorporate landscape areas into the drainage design.	X			
		Overflow parking (parking stalls provided in excess of the City's minimum parking requirements) may be constructed with permeable paving.			X	*There is no overflow parking associated with this site.*

V.2 Source Control BMPs

Table 2. Source Control BMPs

BMP Name	Check One		If not applicable, state brief reason
	Included	Not Applicable	
Non-Structural Source Control BMPs			
Education for Property Owners, Operators, Tenants, Occupants, or Employees	X		
Activity Restrictions	X		
Irrigation System and Landscape Maintenance	X		
Common Area Litter Control	X		
Street Sweeping Private Streets and Parking Lots	X		
Drainage Facility Inspection and Maintenance	X		
Structural Source Control BMPs			
MS4 Stenciling and Signage	X		
Landscape and Irrigation System Design	X		
Protect Slopes and Channels	X		
Provide Community Car Wash Racks		X	Not a part of this project
Properly Design:			
Fueling Areas		X	Not a part of this project
Air/Water Supply Area Drainage		X	Not a part of this project
Trash Storage Areas	X		
Loading Docks	X		
Maintenance Bays		X	Not a part of this project
Vehicle and Equipment Wash Areas		X	Not a part of this project
Outdoor Material Storage Areas		X	Not a part of this project
Outdoor Work Areas/Processing Areas		X	Not a part of this project
Wash Water Controls for Food Preparation Areas	X		

Instructions: *Provide narrative below describing how each* ***included*** *BMP will be implemented, the implementation frequency, inspection and maintenance frequency, inspection criteria, and the entity or party responsible for implementation, maintenance, and/or inspection. The location of each structural BMP must also be shown on the WQMP Site Plan included in Appendix B.*

Appendix D includes copies of the educational materials that will be used in implementing this project-specific WQMP.

V.2.1 Non-Structural Source Control BMPs

EDUCATION FOR PROPERTY OWNERS, OPERATORS, OCCUPANTS, OR EMPLOYEES

Employees or contract workers, who may perform activities that may impact on site Urban Runoff, shall undergo BMP training and education programs. Training will be provided to all new employees within 6 months of hire date and annually thereafter. Employee training materials will be derived from educational materials available through the Co-Permittee or from other resources such as the "California Stormwater Best Management Practice Handbook" which can be found at www.cabmphandbooks.com.

The following educational materials for preventing storm water pollution are included as Appendix D:

- Educational Log
- After the Storm – A Citizen's Guide to Understanding Storm Water
- Stormwater Pollution – Outdoor Cleaning
- Stormwater Pollution – Industrial and Commercial Facilities
- Stormwater Pollution – The Food Service Industry
- SC10 – Non-Storm Water Discharges
- SC11 – Spill Prevention, Control and Cleanup
- SC30 – Outdoor Loading/Unloading
- SC34 – Waste Handling and Disposal
- SC35 – Safer Alternative Products
- SC41 – Building and Grounds Maintenance
- SC43 – Parking/Storage Area Maintenance
- SC60 – House Keeping Practices
- SC71 – Plaza and Sidewalk Cleaning
- SC73 – Landscape Maintenance
- SC74 – Drainage System Maintenance
- TC10 – Infiltration Trench
- TC11 – Infiltration Basin

- TC22 – Extended Detention Basin
- TC30- Vegetative Swale
- TC31 – Vegetative Buffer Strip
- TC32 – Bioretention
- TC50 – Water Quality Inlets

FREQUENCY: Within 6 months of hire date and annually thereafter.

RESPONSIBLE PARTY: Universal Health Services or its representative.

ACTIVITY RESTRICTIONS

The list of restrictions and guidelines for implementation and maintenance of all Best Management Practices specified herein include, but will not be limited to:

- CAR WASHING: No washing of motor vehicles will be allowed on the site. There are no locations on-site where this can occur.
- NO HOSING OF PAVED AREAS: Parking Areas will not be "Hosed Down for cleaning." Rather, areas will be swept clean or dry vacuumed. All collected waste shall be disposed of in a covered container. Oil stains will be cleaned using rags or absorbents, then swept with granular absorbents and then mopped. No acid washing will be permitted. Final mop water shall be disposed into a sanitary sewer facility.
- TRASH: No rubbish, trash or other material shall be kept on site or on any street abutting the properties, except in sanitary containers located in an appropriate trash containment area.
- DRAINAGE: There shall be no interference or alteration of the established drainage pattern unless an alternative is approved by the City.
- NO DISCHARGING: There shall be no discharging of fertilizers, pesticides and or wastes to the streets or any storm drains.
- DUMPSTER LIDS: Dumpster lids shall be closed at all times.
- DEBRIS: No blowing or sweeping of debris (leaf litter, grass clippings, litter, etc.) into the streets or any storm drains.

FREQUENCY: Ongoing.

RESPONSIBLE PARTY: Universal Health Services or its representative.

IRRIGATION SYSTEM AND LANDSCAPE MAINTENANCE

Irrigation systems shall be designed and installed in compliance with state and local water conservation regulations. Irrigation valves are on an automatic irrigation system utilizing various

types of irrigation heads designed to water areas based upon plant water requirements, sun/shade exposure, climatic factors, soil infiltration rate and seasons. A rain shut-off device is specified to maximize efficient water application and flow sensors are installed to identify broken irrigation mainlines and laterals. Irrigation maintenance will address periodic testing and observation to detect overspray, broken sprinkler heads and other system failures.

The Landscape Maintenance Contractors will maintain the site to identify and replace areas of dead vegetation, repair erosion rills and ensure proper disposal of green waste. Landscape maintenance will occur weekly. Also, a designated representative of the owner will be responsible for maintenance of landscaped areas in a manner consistent with the local regulations, the County water Conservation Resolution and the County Management Guideline for the use of Fertilizers and Pesticides.

Fertilizer and pesticide usage shall be consistent with the instructions contained on product labels and with regulations administered by California's Department of Pesticide Regulation.

FREQUENCY: Landscape maintenance will occur weekly.

RESPONSIBLE PARTY: Universal Health Services or its representative.

COMMON AREA LITTER CONTROL

Site litter shall be strictly controlled by an onsite maintenance person. Trash receptacles shall be placed in all common areas and emptied daily by an onsite maintenance person. The onsite maintenance person will also be responsible for removal of manure waste from the portion of the horse trail located within the Temecula Medical Center property boundary.

FREQUENCY: On-Site maintenance for litter and manure control will occur daily.

RESPONSIBLE PARTY: Universal Health Services or its representative.

SWEEPING OF PRIVATE STREETS AND PARKING LOTS

A contractor will sweep and vacuum the private parking lot quarterly, including just prior to the start of the rainy season, no later than October 1st each year. The rubbish/waste from the sweeping may be disposed in any of the on-site dumpsters.

FREQUENCY: Parking lot sweeping shall occur quarterly.

RESPONSIBLE PARTY: Universal Health Services or its representative.

DRAINAGE FACILITY INSPECTION AND MAINTENANCE

Onsite, privately owned catch basins will be inspected and cleaned annually prior to the storm season no later than October 1st each year. Cleaning shall include the removal of debris and sediment accumulated in the basin.

Treatment control or LID BMPs will be inspected and maintained as described in Section VI.

FREQUENCY: Prior to the storm season no later than October 1st each year

RESPONSIBLE PARTY: Universal Health Services or its representative.

V.2.2 Structural Source Control BMPs

MS4 STENCILING AND SIGNAGE

All storm drain inlets and catch basins will be provided with stenciling or signage stating: "NO DUMPING, ONLY RAIN IN THE DRAIN"

All signage shall be inspected for legibility once per year, prior to the storm season no later than October 1st. If signage is weathered, faded or worn, it shall be replaced.

FREQUENCY: Prior to the storm season no later than October 1st each year

RESPONSIBLE PARTY: Universal Health Services or its representative.

LANDSCAPE AND IRRIGATION SYSTEM DESIGN

Landscaping and irrigation shall be designed by a licensed landscape architect in the State of California and in compliance with all applicable standards and specifications for agencies within this jurisdiction. Landscaping shall be maintained on a weekly basis by a landscaping company hired by the owner. Irrigation equipment shall be inspected to ensure overspray is minimized.

- Employing rain shutoff devices to prevent irrigation during and after precipitation events.
- Designing irrigation systems to each landscaped area's specific water requirements
- Using flow reducers or shutoff valves triggered by a pressure drop to control water loss due to broken sprinkler heads or lines
- The timing and application methods or irrigation water shall be designed to minimize the runoff of excess irrigation water into the MS4
- Preparation and implementation of a landscape plan consistent with the City's water conservation ordinance, which includes the use of water sensors and programmable irrigation times
- Preparation and implementation of a landscape plan that:
  - Utilizes plant with low irrigation requirements
  - Groups plants with similar water requirements in order to reduce excess irrigation runoff and promote surface infiltration
  - Uses mulches in planter areas without ground cover to minimize sediment runoff
  - Install appropriate plant materials for the location, in accordance with amount of sunlight and climate, and use native plant material where possible and/or as recommended by the landscape architect
  - Maintaining or creating a vegetative barrier along the property boundary and interior watercourses, to act as a pollutant filter, where appropriate and feasible.

- Use plants that minimize or eliminate the use of fertilizer or pesticides to sustain growth

FREQUENCY: Landscape maintenance will occur weekly.

RESPONSIBLE PARTY: Universal Health Services or its representative.

PROTECT SLOPES AND CHANNELS

All slopes on the project shall not exceed 3:1 and shall be stabilized to minimize erosion. Erosion control measures will be implemented for the proposed outfalls and will include headwalls, wingwalls, energy dissipaters, and vegetative cover.

FREQUENCY: Slopes and channels will be inspected prior to the storm season no later than October 1st each year

RESPONSIBLE PARTY: Universal Health Services or its representative.

TRASH COMPACTOR STORAGE AREA

The trash compactor is a 40 yard sealed unit and will be picked up once a week and hauled to a landfill site. Once dumpster has been removed, site maintenance will clean the dumpster area. Trash container areas for this project shall be constructed using heavy duty (HS-20 loading) reinforced concrete and shall be designed with its own drainage system to be connected to a sanitary sewer line.

FREQUENCY: Trash pick up will be weekly by CR&R Inc. 800-755-8112.

RESPONSIBLE PARTY: Universal Health Services or its representative.

LOADING DOCKS

The loading dock area will be constructed using heavy duty (HS-20 loading) reinforced concrete. The loading dock will be depressed four feet from finished floor elevation with a trench drain. The trench drain will tie into a 36-inch pipe that discharges into the infiltration/basin or gallery.

Loading docks will be kept in a clean and orderly condition through a weekly program of sweeping and litter control and immediate cleanup of spills and broken containers. The loading dock shall be monitored after every delivery by an onsite maintenance person.

FREQUENCY: Monitored after every delivery.

RESPONSIBLE PARTY: Universal Health Services or its representative.

WASH WATER CONTROLS FOR FOOD PREPARATION AREAS

Food preparation wash water areas are all inside the building and drain to sanitary sewer. No outdoor cleaning, food preparation or storage is allowed on the project site.

FREQUENCY: Monitored daily.

RESPONSIBLE PARTY: Universal Health Services or its representative.

Activity	Specific Frequency	Responsible Party
Non- Structural Source Controls		
Education for Property Owners, Operators, Occupants or Employees	Within 6 months of hire date and annually thereafter	UHS or its representatives
Activity Restrictions	Ongoing	UHS or its representatives
Irrigation System and Landscape Maintenance	Weekly	UHS or its representatives
Common Area Litter Control	Daily	UHS or its representatives
Sweeping of Private Streets and Parking Lots	Quarterly	UHS or its representatives
Drainage Facility Inspection and Maintenance	Prior to rainy season no later than October 1st each year	UHS or its representatives
Structural Source Controls		
MS4 Stenciling and Signage	Prior to rainy season no later than October 1st each year	UHS or its representatives
Landscape and Irrigation System Design	Weekly	UHS or its representatives
Protect Slopes and Channels	Prior to rainy season no later than October 1st each year	UHS or its representatives
Trash Compactor Storage Area	Weekly	UHS or its representatives
Loading Docks	Monitored after each delivery	UHS or its representatives
Wash Water Controls for Food Preparation Areas	Monitored daily	UHS or its representatives

V.3 Treatment Control BMPs

Instructions:

1. *Provide narrative below describing each Treatment Control BMP. Include location, identify the sizing criteria [i.e., Urban Runoff quality design flow (QBMP) or the Urban Runoff quality design volume (VBMP), preliminary design calculations, for sizing BMPs, maintenance procedures, and the frequency of maintenance procedures necessary to sustain BMP effectiveness. The location of each Treatment Control BMP must also be shown on the Site Plan included in Appendix B.*
2. *Complete Table 3: Treatment Control BMP Selection Matrix*

   Directions for completing Table 3:

   - *For each pollutant of concern enter "yes" if identified using Exhibit B (Riverside County WQMP - General Categories of Pollutants of Concern per the instructions specified in Section III of this Template), or "no" if not identified for the project.*
   - *Check the boxes of selected BMPs that will be implemented for the project to address each pollutant of concern from the project as identified using Exhibit B. Treatment Control BMPs must be selected and installed with respect to identified pollutant characteristics and concentrations that will be discharged from the site.*
   - *For any identified pollutants of concern not listed in the Treatment Control BMP Selection Matrix, provide an explanation (in space below) of how they will be addressed by Treatment Control BMPs.*

3. *In addition to completing Table 3, provide detailed descriptions on the location, implementation, installation, and long-term O&M of planned Treatment* Control BMPs.

For identified pollutants of concern that are ***causing an impairment in receiving waters****, the project WQMP shall incorporate one or more Treatment Control BMPs of medium or high effectiveness in reducing those pollutants. It is the responsibility of the project proponent to demonstrate, and document in the project WQMP, that all pollutants of concern will be fully addressed. The Agency may require information beyond the minimum requirements of this WQMP to demonstrate that adequate pollutant treatment is being accomplished.*

Supporting engineering calculations for Q_{BMP} and/or V_{BMP}, and Treatment Control BMP design details are included in Appendix F.

Note*: Projects that will utilize infiltration-based Treatment Control BMPs (e.g., Infiltration Basins, Infiltration Trenches, Porous Pavement) must include a copy of the property/project soils report as Appendix E to the project-specific WQMP. The selection of a Treatment Control BMP (or BMPs) for the project must specifically consider the effectiveness of the Treatment Control BMP for pollutants identified as causing an impairment of Receiving Waters to which the project will discharge Urban Runoff.*

Insert text describing Treatment Control BMPs as instructed above.

Table 3: Treatment Control BMP Selection Matrix [1]

Pollutant of Concern	Treatment Control BMP Categories[2]							
	Veg. Swale & Veg. Filter Strips[3]	Detention Basins[4]	Infiltration Basins, Infiltration Trenches, & Porous Pavement[5]	Wet Ponds or Wetlands[6]	Sand Filter or Media Filters	Water Quality Inlets	Hydrodynamic Separator Systems [7]	Manufactured / Proprietary Devices[8]
Sediment/Turbidity Y☐ N☒	H/M ☐	M ☐	H/M ☐	H/M ☐	H/M ☐	L ☐	H/M (L for turbidity) ☐	U ☐
Nutrients Y☒ N☐	L ☒	M ☒	H/M ☒	H/M ☐	L/M ☒	L ☐	L ☐	U ☒
Organic Compounds Y☐ N☒	U ☐	U ☐	U ☐	U ☐	H/M ☐	L ☐	L ☐	U ☐
Trash & Debris Y☐ N☒	L ☐	M ☐	U ☐	U ☐	H/M ☐	M ☐	H/M ☐	U ☐
Oxygen Demanding Substances Y☐ N☒	L ☐	M ☐	H/M ☐	H/M ☐	H/M ☐	L ☐	L ☐	U ☐
Bacteria & Viruses Y☐ N☒	U ☐	U ☐	H/M ☐	U ☐	H/M ☐	L ☐	L ☐	U ☐
Oils & Grease Y☐ N☒	H/M ☐	M ☐	U ☐	U ☐	H/M ☐	M ☐	L/M ☐	U ☐
Pesticides (non-soil bound) Y☐ N☒	U ☐	U ☐	U ☐	U ☐	U ☐	L ☐	L ☐	U ☐
Metals Y☐ N☒	H/M ☐	M ☐	H ☐	H ☐	H ☐	L ☐	L ☐	U ☐

Abbreviations: L: Low removal efficiency H/M: High or medium removal efficiency U: Unknown removal efficiency

Notes for Treatment Control BMP Selection Matrix:

(1) Periodic performance assessment and updating of the guidance provided by this table may be necessary.

(2) Project applicants should base BMP designs on the Riverside County Stormwater Quality Best Management Practice Design Handbook. However, project applicants may also wish to reference the California Stormwater BMP Handbook – New Development and Redevelopment (www.cabmphandbooks.com). The Handbook contains additional information on BMP operation and maintenance.

(3) Includes grass swales, grass strips, wetland vegetation swales, and bioretention.

(4) Includes extended/dry detention basins with grass lining and extended/dry detention basins with impervious lining. Effectiveness based upon minimum 36-48-hour drawdown time.

(5) Projects that will utilize infiltration-based Treatment Control BMPs (e.g., Infiltration Basins, Infiltration Trenches, Porous Pavement, etc.) must include a copy of the property/project soils report as an appendix to the project-specific WQMP. The selection of a Treatment Control BMP (or BMPs) for the project must specifically consider the effectiveness of the Treatment Control BMP for pollutants identified as causing an impairment of Receiving Waters to which the project will discharge Urban Runoff.

(6) Includes permanent pool wet ponds and constructed wetlands.

(7) Also known as hydrodynamic devices, baffle boxes, swirl concentrators, or cyclone separators.

(8) Includes proprietary stormwater treatment devices as listed in the CASQA Stormwater Best Management Practices Handbooks, other stormwater treatment BMPs not specifically listed in this WQMP, or newly developed/emerging stormwater treatment technologies.

PRE-TREATMENT – Flow Based Treatment Control BMPs

Flow based BMP design standards are applicable to BMPs where the rate of flow is the primary factor in pollutant removal efficiency. The storm water quality design flow (Q_{BMP}) must be determined to ensure the pre-treatment BMPs will perform with the storm water quantities calculated for the site. BMP sizing calculations are included in Appendix F.

Rain GardensRunoff from the building roofs will be pre-treated using rain gardens around the buildings. The roof drainage will flow from all roof downspouts to at-grade pipes that will discharge to designed and landscaped rain gardens. The design of the rain gardens was detailed by the landscape architect to have specific plantings which are recommended for pollutant removals. The landscape plans present more details on plant selection. The rain gardens are capable of reducing sediment, total suspended solids (TSS), oxygen demanding substances, nutrients, metals, oil and grease, and bacteria. These rain gardens all discharge to the main treatment BMP – the infiltration basin or gallery.

Phase I will include six rain gardens located to capture the roof runoff. The future building designs are not known at this time however space is available for future gardens.

Modular Wetland System

Surface runoff from a portion of the site will flow to 9 modular wetland system units that provide pre-treatment of flows prior to entering the infiltration basin and infiltration gallery located on the north and east sides of the facility. The Modular Wetland System (MWS) is a proprietary underground storm water filtration system by Bio-Clean Environmental Services, Inc. The modular wetlands provide pre-treatment as well as primary treatment since they have a high to medium efficiency treating for nutrients. After passing through the treatment wetlands, flows will enter the storm drain system and enter the detention basins, infiltration basin, or infiltration gallery. BMP design and maintenance information is included in Appendix F in the manufacturer's technical data sheets.

Phase I will include all 9 modular wetlands systems. A total of nineteen modular wetlands systems will be included for ultimate build-out.

Strip Sand Filter

Two strip sand filters will provide pretreatment of surface drainage entering the infiltration basin and detention basins within the mid-north side of the facility. The strip sand filter is comprised of a river rock surface layer, filter fabric, a course to medium grain sand filter layer, and a gravel pack with perforated pipe that drains treated storm water to the infiltration basin, detention basins, and infiltration gallery. These filters serve as pretreatment to prevent clogging of the basins and gallery. The strip sand filters and modular wetland systems are placed throughout the site to treat surface runoff locally rather than at the boundary of the site. BMP design and maintenance information is included in Appendix F in TC40 – Media Filter.

Phase I will include installation of both sand filters. A total of ten sand filters will be included for ultimate build-out.

Vegetated Swale/Strip

Six biofiltration/ vegetated swales or strips will be located on the site. One swale at the multi-purpose trail and the others, located throughout the site, will provide pretreatment for the infiltration basin. The vegetated swale will treat runoff by filtering it through the vegetation and infiltrating it into the underlying soil. The vegetated swale will capture particulate pollutants and provide pretreatment to avoid clogging of the infiltration basin. BMP design and maintenance information is included in Appendix F in TC30 – Vegetated Swale.

Phase I will include four vegetated swales and two vegetative strips. A total of three vegetated swales will be included for ultimate build-out. Two of the existing swales will be replaced with rain gardens (these locations are within the future MOB building pads) and one additional swale will be added in the areas of the proposed fitness center. No additional strips will be added to the site.

PRIMARY TREATMENT – Volume Based Treatment

Volume-based BMP design standards apply to BMPs whose primary mode of pollutant removal depends on the volumetric capacity of the BMP. Volume-based Treatment Control BMPs shall be designed to infiltrate or treat the design volume of runoff. The storm water quality design volume (V_{BMP}) must be determined to ensure the pre-treatment BMPs will perform with the storm water quantities calculated for the site. BMP sizing calculations are included in Appendix F.

Infiltration Basin

On the very north and southeast side of the facility, percolation tests indicated that soil conditions were favorable for an infiltration BMP. This infiltration BMP will be used to capture and infiltrate site runoff from the north and east sides of the facility. Since the infiltration basin and infiltration gallery will treat for pollutants of concern with high efficiency they are considered primary treatment. The infiltration basin has been designed to meet the water quality storm flow volume. In addition to the infiltration basin, an underground infiltration gallery will be used to capture surface flows on the southeast side of the facility. The underground infiltration gallery will consist of an underground system of proprietary perforated polyproplylene collection chambers by StormTech.

The Facilities Manager will ensure that the infiltration basin is inspected during and after storm events, and monthly during the rainy season (October 1 through April 30). BMP design and maintenance information is included in Appendix F in TC11 – Infiltration Basins.

Phase I will include one infiltration basin. A total of one infiltration basins will be included for ultimate build-out. The southeast basin will be replaced in build-out by the infiltration gallery (presented below). A single new basin will be included on the north side of the site to manage the runoff from the proposed fitness center and the adjacent parking lot.

Underground Infiltration – StormTech Infiltration Gallery

The StormTech infiltration gallery will be used as an underground infiltration BMP in the southeast corner of the facility. The StormTech treatment unit will provide primary treatment to surface flows and provides high efficiency treatment of pollutants of concern. Flows will enter the infiltration gallery

after going through the sediment basin that acts as a forebay. The infiltration gallery will receive flows from the north and east side of the building.

The Facilities Manager will ensure that the infiltration gallery is inspected during and after storm events, and monthly during the rainy season (October 1 through April 30). BMP design and maintenance information is included in Appendix F in TC11 – Infiltration Basins.

This BMP will be constructed in a later Phase of the overall development. Two chamber sets are proposed to manage the expected volume.

Detention Basin

The percolation tests for most of the site indicated that soil conditions are not conducive for infiltration so detention basins will act as the BMP. Surface flows from the west side of the facility will enter the detention basins after pre-treatment from the modular wetland systems and strip sand filters BMPs. The detention basin has been designed to drain within 72 hours to prevent standing water conditions and vector-control issues.

Flows that enter the detention basin will be detained temporarily to allow sedimentation to occur. A standpipe riser with orifices will be used to slowly drain the treated runoff from the detention basin to the downstream MS4 system. The detention basins have been designed to meet the water quality storm flow volume. In order to prevent flooding of the basins, an overflow vault system is incorporated to accept flood volumes in excess of the water quality storm volume. The detention basins will also serve to attenuate peak flows for flood control.

The Facilities Manager will ensure that the detention basins are inspected during and after storm events, and monthly during the rainy season (October 1 through April 30). BMP design and maintenance information is included in Appendix F in TC22 – Extended Detention Basins.

Phase I will include three detention basins. An additional detention basin will be added for ultimate build-out.

V.4 Equivalent Treatment Control Alternatives

Not applicable to this project.

V.5 Regionally-Based Treatment Control BMPs

Not applicable to this project.

VI. OPERATION AND MAINTENANCE RESPONSIBILITY FOR TREATMENT CONTROL BMPs

Operation and maintenance (O&M) requirements for all structural Source Control and Treatment Control BMPs shall be identified in the project-specific WQMP. The project-specific WQMP shall address the following:

- Identification of each BMP that requires O&M.
- Thorough description of O&M activities, the O&M process, and the handling and placement of any wastes.
- BMP start-up dates.
- Schedule of the frequency of O&M for each BMP.
- Identification of the parties (name, address, and telephone number) responsible for O&M, including a written agreement with the entities responsible for O&M. This agreement can take the form of a Covenant and Agreement recorded by the Project Proponent with the County Recorder, HOA or POA CC&Rs, formation of a maintenance district or assessment district or other instrument sufficient to guarantee perpetual O&M. The preparer of this project-specific WQMP should carefully review Section 4.6 of the WQMP prior to completing this section of the project-specific WQMP.
- Self-inspections and record-keeping requirements for BMPs (review local specific requirements regarding self-inspections and/or annual reporting), including identification of responsible parties for inspection and record- keeping.
- Thorough descriptions of water quality monitoring, if required by the Co-Permittee.

Instructions: *Identify below all operations and maintenance requirements, as described above, for each structural BMP. Where a public agency is identified as the funding source and responsible party for a Treatment Control BMP, a copy of the written agreement stating the public agency's acceptance of these responsibilities must be provided in Appendix G.*

Insert text as instructed above.

Appendix G of this project-specific WQMP includes a copy of the Water Quality Management Plan and Stormwater BMP Transfer, Access, and Maintenance Agreement for the project-specific WQMP requirements.

Phase I Development

Structural BMP	Quantity	Capital Cost	Annual O&M Costs	Start Up Dates	O&M Frequency	Responsible Funding Party for Installation and O&M
Rain Garden	6	$1,200	$500	Prior to receiving Certificate of Occupancy	In accordance with landscaping requirements. See Appendix D.	Universal Health Services
Modular Wetland System	9	$500,000	$18,000	Prior to receiving Certificate of Occupancy	In accordance with manufacturer's recommendations. See Appendix F.	Universal Health Services
Sand Strip Filters	2	$350,000	$2,500	Prior to receiving Certificate of Occupancy	Semi-annual inspections for standing water, sediment, trash and debris. Also inspect at start and end of wet season. See TC-40 in Appendix D.	Universal Health Services
Vegetated Swale	2	$60,000	$1,500	Prior to receiving Certificate of Occupancy	Semi-annual inspections and at the end of the wet season and after heavy rain events. See TC-30 in Appendix D.	Universal Health Services
Vegetative Strip	4	$30,000	$1,000	Prior to receiving Certificate of Occupancy	Semi-annual inspections and at the end of the wet season and after heavy rain events. See TC-30 in Appendix D.	Universal Health Services
Infiltration Basins	1	$250,000	$2,500	Prior to receiving Certificate of Occupancy	Semi-annual inspections at start and end of wet season. See TC-11 in Appendix D.	Universal Health Services
Detention Basins	3	$450,000	$3,000	Prior to receiving Certificate of Occupancy	Semi-annual inspections and at the end of the wet season and after heavy rain events. Sediment, trash, and vegetation removal as needed. See TC-22 in Appendix D.	Universal Health Services

Ultimate Development

Structural BMP	Quantity	Capital Cost	Annual O&M Costs	Start Up Dates	O&M Frequency	Responsible Funding Party for Installation and O&M
Rain Garden	6	$1,200	$500	Prior to receiving Certificate of Occupancy	In accordance with landscaping requirements. See Appendix D.	Universal Health Services
Modular Wetland System	19	$500,000	$18,000	Prior to receiving Certificate of Occupancy	In accordance with manufacturer's recommendations. See Appendix F.	Universal Health Services
Sand Strip Filters	10	$350,000	$2,500	Prior to receiving Certificate of Occupancy	Semi-annual inspections for standing water, sediment, trash and debris. Also inspect at start and end of wet season. See TC-40 in Appendix D.	Universal Health Services
Vegetated Swale	3	$60,000	$1,500	Prior to receiving Certificate of Occupancy	Semi-annual inspections and at the end of the wet season and after heavy rain events. See TC-30 in Appendix D.	Universal Health Services
Infiltration Basins	1	$250,000	$2,500	Prior to receiving Certificate of Occupancy	Semi-annual inspections at start and end of wet season. See TC-11 in Appendix D.	Universal Health Services
Vegetative Strip	2	$30,000	$1,000	Prior to receiving Certificate of Occupancy	Semi-annual inspections at start and end of wet season. See TC-30 in Appendix D.	Universal Health Services
StormTech Infiltration Gallery	2	$300,000	$500	Prior to receiving Certificate of Occupancy	In accordance with manufacturer's recommendations. See Appendix F.	Universal Health Services
Detention Basins	4	$450,000	$3,000	Prior to receiving Certificate of Occupancy	Semi-annual inspections and at the end of the wet season and after heavy rain events. Sediment, trash, and vegetation removal as needed. See TC-22 in Appendix D.	Universal Health Services

VII. FUNDING

A source of funding is required for all site design, source control, and treatment BMPs. For this project, the owner will fund the installation, and operation and maintenance of all BMPs described in this WQMP until the project is transferred to a new owner. Each owner shall record this WQMP with the County of Riverside as an attachment to the title of the property in order to transfer the operation and maintenance responsibilities to each new owner. Where the owner requires a lessee or other party to install, and operate and maintain the BMPs, the owner will maintain ultimate funding responsibilities, and will, upon default of the lessee or other party to fulfill these responsibilities, shall cause the same to be performed at the owner's expense. Nothing in this WQMP shall prevent the owner from pursuing cost recovery from any lessee or other party responsible for the BMPs, or from pursuing remedies for the default of responsibilities as provided by the lease contract and law.

The property owner, Universal Health Services, of the Temecula Medical Center at 31700 Temecula Parkway will be responsible for the installation, and operation and maintenance of all BMPs until such time that the site is transferred to a new owner.

Owner's Signature

5-25-11
Date

William R Sozio
Owner's Printed Name

VP Design & Construction
Owner's Title/Position

Temecula Medical Center
31700 Temecula Parkway
c/o Universal Health Services
367 South Gulph Road
King of Prussia, PA 19406

Appendix A

Conditions of Approval

City to attack, set aside, annul, or seek monetary damages resulting, directly or indirectly, from any action in furtherance of and the approval of the City, or any agency or instrumentality thereof, advisory agency, appeal board or legislative body including actions approved by the voters of the City, concerning the Planning Application. The City shall be deemed for purposes of this condition, to include any agency or instrumentality thereof, or any of its elected or appointed officials, officers, employees, consultants, contractors, legal counsel, and agents. City shall promptly notify both the applicant and landowner of any claim, action, or proceeding to which this condition is applicable and shall further cooperate fully in the defense of the action. The City reserves the right to take any and all action the City deems to be in the best interest of the City and its citizens in regards to such defense.

3. The permittee shall obtain City approval for any modifications or revisions to the approval of this project.

4. This approval shall be used within one year of the approval date; any time extension beyond the initial one year from approval of this modification will require the preparation of a new environmental document. By use is meant the beginning of substantial construction contemplated by this approval within the one-year period, which is thereafter diligently pursued to completion, or the beginning of substantial utilization contemplated by this approval.

5. A separate building permit shall be required for all signage.

6. Prior to the approval and issuance of any permanent signs, a sign program shall be submitted for review and approval for the project site.

7. The development of the premises shall substantially conform to the approved site plan and elevations contained on file with the Planning Department.

8. Landscaping installed for the project shall be continuously maintained to the reasonable satisfaction of the Planning Director. If it is determined that the landscaping is not being maintained, the Planning Director shall have the authority to require the property owner to bring the landscaping into conformance with the approved landscape plan. The continued maintenance of all landscaped areas shall be the responsibility of the developer or any successors in interest.

9. The applicant shall paint a three-foot by three-foot section of the building for Planning Department inspection, prior to commencing painting of the building.

10. The applicant shall submit to the Planning Department for permanent filing two 8" X 10" glossy photographic color prints of the approved Color and Materials Board and the colored architectural elevations. All labels on the Color and Materials Board and Elevations shall be readable on the photographic prints.

11. The Conditions of Approval specified in this resolution, to the extent specific items, materials, equipment, techniques, finishes or similar matters are specified, shall be deemed satisfied by staffs' prior approval of the use or utilization of an item, material, equipment, finish or technique that City staff determines to be the substantial equivalent of that required by the Condition of Approval. Staff may elect to reject the request to substitute, in which case the real party in interest may appeal, after payment of the regular cost of an appeal, the decision to the Planning Commission for its decision.

Material	Color
Exterior Plaster Color No. 1:	Dryvit #456, "Oyster Shell" in Dryvit "Sandblast" texture
Exterior Plaster Color No. 2:	Dryvit #383, "Honey Twist" in Dryvit "Sandblast texture
Tile Base:	Daltile #CS51, 12" x 12" Continental Slate, Indian Red
Painted Trim:	To match color of "Indian Red" in tile base
Ceramic Roof Tile:	Monier Lifetile, Duralite Villa
Tinted Glass:	Viracon, Bronze VE 4-2M
Window Frame:	Kawneer, Medium Bronze

12. Trash enclosures shall be provided to house all trash receptacles utilized on the site. These shall be clearly labeled on site plan.

13. All utilities shall be screened from view. Landscape construction drawings shall show and label all utilities and provide appropriate screening. A three-foot clear zone shall be provided around fire check detectors as required by the Fire Department before starting the screen. Utilities shall be grouped together in order to reduce intrusion. Screening of utilities shall not look like an after-thought. Planting beds shall be designed around utilities. All light poles shall be located on the landscape plans and the applicant shall insure that there are no conflicts with trees.

14. The applicant shall insure that mature plantings will not interfere with utilities, adjacent site existing structures and landscaping and traffic sight lines.

15. All requirements of Development Code Chapter 17.32 (Water Efficient Landscape Design) are required to be met.

16. The applicant shall comply with the Mitigation Monitoring Program for the project.

17. The split rail fencing for the multi-use trail proposed along the northern property lines, adjacent to the residences shall be extended from the current location to the western edge of the property line. Said fence shall be a continuous fence beginning from the secondary driveway at DePortola to the western property line. **(Added by City Council, January 22, 2008).**

18. The developer shall contact the City's franchised solid waste hauler for disposal of construction debris. Only the City's franchisee may haul construction debris.

19. All trash enclosures shall be large enough to accommodate a recycling bin, as well as a regular solid waste container.

20. The property owner or private maintenance association shall maintain all parkways, perimeter landscaping, trail, walls, fences and on site lighting.

21. The developer shall comply with the Public Art Ordinance.

22. All major equipment (elevator motors, generators, air conditioning, etc., and soundproofing of same) shall conform to the latest best standards for noise reduction such that noise from these sources conforms to the City's Noise Ordinance. **(Added per Planning Commission recommendation, December 15, 2010).**

23. Trash service and deliveries to the loading dock shall be restricted to the hours of 7:00 a.m. to 6:00 p.m. All vehicles providing these services shall enter and leave the hospital grounds via the Temecula Parkway or Dona Lynora Road entrances only. **(Added per Planning Commission recommendation, December 15, 2010).**

24. Within 30 days of notification from the City to the applicant that the rough grading permit is cleared for issuance, the applicant shall submit, to the satisfaction of the City Attorney, completion security in the amount of $5 million that shall be released upon the completion of the foundation for the Phase I hospital building (hospital bed tower 1) **(Added per City Council, February 8, 2011).**

25. The applicant shall complete grading and commence construction of the Phase I hospital building (hospital bed tower 1) foundation no later than February 8, 2012. A 60-day grace period shall be permitted, subject to approval by the City Council, and based only on extenuating circumstances beyond the control of the applicant (extending to April 8, 2012) **(Added per City Council, February 8, 2011).**

26. The applicant shall commence vertical construction of the Phase I hospital building (hospital bed tower 1) no later than May 8, 2012. A 60-day grace period shall be permitted, subject to approval by the City Council, and based only on extenuating circumstances beyond the control of the applicant (extending to July 8, 2012) **(Added per City Council, February 8, 2011).**

27. The applicant shall commence construction of the Phase IV hospital bed tower (hospital bed tower 2) foundation within 5 years of issuance of the Certificate of Occupancy for the Phase I hospital building (hospital bed tower 1), or no later than February 8, 2019 **(Added per City Council, February 8, 2011).**

Police Department

28. Any graffiti painted or marked upon the building shall be removed or painted over within twenty-four (24) hours of being discovered. Notify the Temecula Police Department immediately so a report can be taken.

29. Any business desiring a business security survey of their location can contact the crime prevention unit of the Temecula Police Department.

30. Any public telephones located on the exterior of the building should be placed in a well-lighted, highly visible area, and installed with a "call-out only" feature to deter loitering. This feature is not required for public telephones installed within the interior of the building.

31. Applicant shall ensure all landscaping surrounding the building are kept at a height of no more than three feet or below the ground floor windowsills. Plants, hedges and shrubbery should be defensible plants to deter would-be intruders from breaking into the building utilizing lower level windows.

    a. The placement of all landscaping should comply with guidelines from Crime Prevention Through Environmental Design (CPTED).

32. All parking lot lighting surrounding the complex should be energy-saving and minimized after hours of darkness and in compliance with the State of California Lighting Ordinance. Furthermore, all exterior lighting must comply with Mt. Palomar Lighting Requirements.

33. All doors, windows, locking mechanisms, hinges, and other miscellaneous hardware shall be commercial or institution grade.

34. All exterior doors should have their own vandal resistant fixtures installed above. The doors shall be illuminated with a minimum one foot candle of light at ground level, evenly dispersed.

35. Upon completion of construction, the buildings shall have a monitored alarm system installed and monitored 24 hours a day by a designated private alarm company to notify the Temecula Police Department of any intrusion. All multi-tenant offices/suites/businesses located within a specific building shall have their own alarm system. This condition is not applicable if the business is opened 24/7.

36. All disabled parking stalls on the premises shall be marked in accordance with Section 22511.8 of the California Vehicle Code.

37. Any emergency generator system shall be inside a secure enclosure to prevent theft of fuel or tampering with the equipment.

38. All pressurized gas cylinders not in use shall be stored in a secure location to prevent theft.

Building and Safety Department

39. Trash enclosures, patio covers, light standards, and any block walls if not on the approved building plans, will require separate approvals and permits.

40. Signage shall be posted conspicuously at the entrance to the project that indicates the hours of construction, shown below, as allowed by the City of Temecula Ordinance No. 0-90-04, specifically Section G (1) of Riverside County Ordinance No. 457.73, for any site within one-quarter mile of an occupied residence.

Monday-Friday	6:30 a.m. – 6:30 p.m.
Saturday	7:00 a.m. – 6:30 p.m.

No work is permitted on Sundays or Government Holidays

Fire Prevention

41. Final fire and life safety conditions will be addressed when building plans are reviewed by the Fire Prevention Bureau. These conditions will be based on occupancy, use, the California Building Code (CBC), California Fire Code (CFC), and related codes which are in force at the time of building plan submittal.

42. The Fire Prevention Bureau is required to set a minimum fire flow for the remodel or construction of all commercial buildings per CFC Appendix B. The developer shall provide for this project, a water system capable of delivering 4,000 GPM at 20-PSI residual operating pressure for a 4-hour duration. The fire service loop will be a complete looped system with two points of connection (CFC Appendix B and Temecula City Ordinance 15.16.020, Section R).

43. The Fire Prevention Bureau is required to set minimum fire hydrant distances per CFC Appendix C. A combination of on-site and off-site 6" x 4" x 2-2 ½" outlets on a looped system shall be located on fire access roads and adjacent to public streets. Hydrants shall

be spaced at 350 feet apart, at each intersection and shall be located no more than 210 feet from any point on the street or Fire Department access road(s) frontage to a hydrant. The required fire flow shall be available from any adjacent hydrants in the system. The fire hydrants will provide coverage for the entire site, including all buildings, open space and parking areas (CFC Appendix C and Temecula City Ordinance 15.16.020, Section R).

44. As required by the California Fire Code, when any portion of the facility is in excess of 150 feet from a water supply on a public street, as measured by an approved route around the exterior of the facility, on-site fire hydrants and mains capable of supplying the required fire flow shall be provided (CFC Chapter 5, Section 508.5).

45. If construction is phased, each phase shall provide approved access and fire protection prior to any building construction. This includes the fire service lines and hydrants must be completed for the entire site prior to combustibles being brought on site. (CFC Chapter 5, Section 503.4

Public Works Department

46. A Grading Permit for either rough and/or precise grading, including all on-site flat work and improvements, shall be obtained from the Department of Public Works prior to commencement of any construction outside of the City-maintained street right-of way.

47. An Encroachment Permit shall be obtained from the Department of Public Works prior to commencement of any construction within an existing or proposed City right-of-way.

48. All improvement plans and grading plans shall be coordinated for consistency with adjacent projects and existing improvements contiguous to the site and shall be submitted on standard 24" x 36" City of Temecula mylars.

49. All on-site drainage facilities shall be maintained by a private maintenance association or property owner.

50. The undergrounding of electrical and telecommunication facilities per Temecula Municipal Code, Section 15.04.080 shall be completed prior to the issuance of the first building permit in Phase 3 (Medical Office Building 2).

51. The driveway on De Portola Road will be restricted to right-in/right-out/left-in movements.

PRIOR TO ISSUANCE OF GRADING PERMITS

Planning Department

52. Submit security completion bond per Condition of Approval number 24.

53. The applicant shall submit a separate plan, entitled outdoor furniture detail plan, showing details of all outdoor furniture, subject to the approval of the Director of Planning. Outdoor furniture shall be decorative and of high quality appearance.

54. The applicant shall submit cross sections verifying that all roof mounted equipment will be screened from public view as determined acceptable by the Director of Planning.

55. The elevations and roof plans shall show internalized downspouts for all buildings and

structures, excluding trash enclosures.

56. Trash enclosures shall be shown on the site plan, landscape plan and elevations and shall comply with the following:

    a. Trash enclosures shall be provided to house all trash receptacles utilized on the site.

    b. All trash enclosures shall blend with the architecture of the overall center and include a decorative roof type feature as approved by the Director of Planning.

    c. Trash enclosures shall be screened from view. The applicant shall provide shrubs and wall vines on three sides of enclosures as required to provide screening.

57. Details of all exterior light fixtures, including decorative entry lighting and wall mounted lighting, shall be provided on the plans.

58. The Applicant shall provide a detailed elevation drawing to show a decorative fence no less than four feet in height around the helipad, subject to the approval of the Planning Director. Said fence shall be constructed in a manner that deflects horizontal wind velocities caused by the rotation of rotor blades, providing all FAR Part 77 imaginary surfaces and the surface of the area remain obstruction free, per Section 1710.020.P of the City of Temecula Development Code.

59. Provide the Planning Department with a copy of the underground water plans and electrical plans for verification of proper placement of transformer(s) and double detector check prior to final agreement with the utility companies.

60. Double detector check valves shall be either installed underground or internal to the project site at locations not visible from the public right-of-way, subject to review and approval by the Director of Planning.

61. The following shall be included in the Notes Section of the Grading Plan: "If at any time during excavation/construction of the site, archaeological/cultural resources, or any artifacts or other objects which reasonably appears to be evidence of cultural or archaeological resource are discovered, the property owner shall immediately advise the City of such and the City shall cause all further excavation or other disturbance of the affected area to immediately cease. The Director of Planning at his/her sole discretion may require the property to deposit a sum of money it deems reasonably necessary to allow the City to consult and/or authorize an independent, fully qualified specialist to inspect the site at no cost to the City, in order to assess the significance of the find. Upon determining that the discovery is not an archaeological/cultural resource, the Director of Planning shall notify the property owner of such determination and shall authorize the resumption of work. Upon determining that the discovery is an archaeological/cultural resource, the Director of Planning shall notify the property owner that no further excavation or development may take place until a mitigation plan or other corrective measures have been approved by the Director of Planning."

62. Prior to the issuance of grading permits, the developer is required to enter into a Cultural Resources Treatment Agreement with the Pechanga Tribe. This Agreement will address the treatment and disposition of cultural resources and human remains that may be impacted as a result of the development of the Project, as well as provisions for tribal monitors.

63. If cultural resources are discovered during the project construction (inadvertent discoveries),

all work in the area of the find shall cease, and a qualified archaeologist and representatives of the Pechanga Tribe shall be retained by the project sponsor to investigate the find, and make recommendations as to treatment and mitigation.

64. A qualified archaeological monitor will be present and will have the authority to stop and redirect grading activities, in consultation with the Pechanga Tribe and their designated monitors, to evaluate the significance of any archaeological resources discovered on the property.

65. Tribal monitors from the Pechanga Tribe shall be allowed to monitor all grading, excavation and groundbreaking activities, including all archaeological surveys, testing, and studies, to be compensated by the developer.

66. The landowner agrees to relinquish ownership of all cultural resources, including all archaeological artifacts that are found on the Project area, to the Pechanga Tribe for proper treatment and disposition.

67. All sacred sites are to be avoided and preserved.

68. A qualified paleontologist/archaeologist shall be chosen by the developer for consultation and comment on the proposed grading with respect to potential paleontological/ archaeological impacts. A meeting between the paleontologist/ archaeologist, Planning Department staff, and grading contractor prior to the commencement of grading operations and the excavation shall be arranged. The paleontologist/archaeologist or representative shall have the authority to temporarily divert, redirect or halt grading activity to allow recovery of fossils. The applicant shall provide written verification that services for on-site professional archaeological and paleontological monitoring has been contracted during all phases of earthmoving activities.

69. The Pechanga Band of Luiseño Indians shall be contacted to afford the Band an opportunity to monitor ground-disturbing activities and participate in the decisions regarding collection and curation of any such resources. The applicant shall submit correspondence to the Planning Department that confirms that such contact has been made prior to the issuance of a grading permit.

70. The Applicant shall enter into a pre-construction agreement/treatment plan with the Pechanga Band of Luiseño Indians, prior to the issuance of grading permits, that sets forth and contains the terms and conditions for the treatment of discoveries of Native American cultural resources. The agreement/treatment plan shall contain provisions for the treatment of all Native American cultural items, artifacts, and human remains that may be uncovered during the project. The agreement/treatment plan may allow for the presence of Pechanga tribal monitors during any ground-disturbing activities. The applicant shall submit a signed copy of the pre-construction agreement/treatment plan to the Planning Department prior to the issuance of a grading permit.

71. The Applicant and/or landowner agrees to relinquish all cultural resources, including all archeological artifacts, that are found on the Project area to the Pechanga Band of Luiseño Indians for proper treatment and disposition. This mitigation measure shall be placed on the grading plan as a note prior to issuance of a grading permit.

72. Prior to any ground disturbance activities a qualified archaeological monitor will be present and will have the authority to stop and redirect grading activities, in consultation with the

Pechanga Band of Luiseño Indians and their designated monitors, to evaluate the significance of any archaeological resources discovered on the property. This mitigation measure shall be placed on the grading plan as a note prior to issuance of a grading permit.

73. If any human remains are encountered on the project site, all ground disturbing activities in the vicinity of the discovery will be terminated immediately and the County Coroner's office and the Pechanga Band of Luiseño Indians will be contacted to arrange for the treatment of such remains. This mitigation measure shall be placed on the grading plan as a note prior to issuance of a grading permit.

74. The applicant must enter into a written pre-excavation agreement with the Pechanga Band of Luiseño Indians that addresses the treatment and disposition of all cultural resources, human resources and human remains discovered on-site. A copy of the signed document shall be submitted to the Planning Department.

75. The grading plan shall include the following:

    a. Earth berms as required along the northern property lines and along Highway 79 South as discussed in these Conditions of Approval.

    b. A note on the plans indicating all areas not proposed for development within six months shall be hydroseeded and irrigated for soil and dust erosion.

    c. Show the five-foot landscapé dimension for all parking islands, including the 1-foot concrete landing strip (seven feet total width). One parking island is required per ten parking spaces.

Public Works Department

76. A copy of the grading, improvement plans, along with supporting hydrologic and hydraulic calculations shall be submitted to the Riverside County Flood Control and Water Conservation District for approval prior to the issuance of any permit. A permit from Riverside County Flood Control and Water Conservation District is required for work within their right-of-way.

77. Each phase must install its respective WQMP BMP(s) as shown in the master plan. The applicant shall update the WQMP as each phase is developed and include slip sheets or other means to reflect the changes as each phase is developed.

78. A Grading Plan shall be prepared by a registered Civil Engineer and shall be reviewed and approved by the Department of Public Works. The grading plan shall include all necessary erosion control measures needed to adequately protect adjacent public and private property.

79. The Developer shall post security and enter into an agreement guaranteeing the grading and erosion control improvements in conformance with applicable City Standards and subject to approval by the Department of Public Works.

80. A Soil Report shall be prepared by a registered Soil or Civil Engineer and submitted to the Director of the Department of Public Works with the initial grading plan check. The report shall address all soils conditions of the site, and provide recommendations for the construction of engineered structures and pavement sections.

81. A Geological Report shall be prepared by a qualified engineer or geologist and submitted to

the Department of Public Works with the initial grading plan check. The report shall address special study zones and the geological conditions of the site, and shall provide recommendations to mitigate the impact of liquefaction.

82. The Developer shall have a Drainage Study prepared by a registered Civil Engineer in accordance with City Standards identifying storm water runoff expected from this site and upstream of this site. The study shall identify all existing or proposed public or private drainage facilities intended to discharge this runoff. The study shall also analyze and identify impacts to downstream properties and provide specific recommendations to protect the properties and mitigate any impacts. Any upgrading or upsizing of downstream facilities, including acquisition of drainage or access easements necessary to make required improvements, shall be provided by the Developer.

83. NPDES - The project proponent shall implement construction-phase and post-construction pollution prevention measures consistent with the State Water Resources Control Board (SWRCB) and City of Temecula (City) NPDES programs. Construction-phase measures shall include Best Management Practices (BMPs) consistent with the City's Grading, Erosion & Sediment Control Ordinance, the City's standard notes for Erosion and Sediment Control, and the SWRCB General Permit for Construction Activities. Post-construction measures shall be required of all Priority Development Projects as listed in the City's NPDES permit. Priority Development Projects will include a combination of structural and non-structural onsite source and treatment control BMPs to prevent contaminants from commingling with stormwater and treat all unfiltered runoff year-round prior to entering a storm drain. Construction-phase and post-construction BMPs shall be designed and included into plans for submittal to, and subject to the approval of, the City Engineer prior to issuance of a Grading Permit. The project proponent shall also provide proof of a mechanism to ensure ongoing long-term maintenance of all structural post-construction BMPs.

84. As deemed necessary by the Director of the Department of Public Works, the Developer shall receive written clearance from the following agencies:

    a. San Diego Regional Water Quality Control Board

    b. Riverside County Flood Control and Water Conservation District

    c. Planning Department

    d. Department of Public Works

85. The Developer shall comply with all constraints which may be shown upon an Environmental Constraint Sheet (ECS) recorded with any underlying maps related to the subject property.

86. Permanent landscape and irrigation plans shall be submitted to the Planning Department and the Department of Public Works for review and approval.

87. The Developer shall obtain any necessary letters of approval or slope easements for off-site work performed on adjacent properties as directed by the Department of Public Works.

88. A flood mitigation charge shall be paid. The Area Drainage Plan fee is payable to the Riverside County Flood Control and Water Conservation District by either cashier's check or money order, prior to issuance of permits, based on the prevailing area drainage plan fee. If the full Area Drainage Plan fee or mitigation charge has already been credited to this property, no new charge needs to be paid.

89. The site is in an area identified on the Flood Insurance Rate Map as Flood Zone X. This project shall comply with Chapter 15, Section 15.12 of the City Municipal Code which may include obtaining a Letter of Map Revision from FEMA. A Flood Plain Development Permit shall be submitted to the Department of Public Works for review and approval.

Fire Prevention

90. Maximum cul-de-sac- length shall not exceed 1320 feet. Minimum outside turning radius on any cul-de-sac shall be 45 feet (CFC Chapter 5, 503.2.4.and 503.2.5.along with Temecula City Ordinance 15.16.020 Section E).

91. Fire apparatus access roads shall be designed and maintained to support the imposed loads of fire apparatus and shall be with a surface to provide all-weather driving capabilities. Access roads shall be 80,000 lbs. GVW with a minimum of AC thickness of .25 feet. In accordance with Section 1410.1, prior to building construction, all locations where structures are to be built shall have fire apparatus access roads. All fire service access roads shall be installed and complete for the entire site prior to combustibles being brought on site.(CFC Chapter 5, Section 503.2, 503.4 and City Ordinance 15.16.020 Section E).

92. Fire Department vehicle access roads shall have an unobstructed width of not less than 24 feet and an unobstructed vertical clearance of not less than 13 feet 6 inches (CFC Chapter 5, Section 503.2, 503.4 and City Ordinance 15.16.020 Section E).

93. The gradient for fire apparatus access roads shall not exceed 15 percent (CFC Chapter 5, Section 503.2.7. and City Ordinance 15.16.020 Section E).

94. This development shall maintain two points of access, via all-weather surface roads, as approved by the Fire Prevention Bureau (CFC Chapter 5, Section 503.1.2).

95. Dead end roadways and streets in excess of 150 feet which have not been completed shall have a turnaround capable of accommodating fire apparatus (CFC Chapter 5, Section 503.2.5 and City Ordinance 15.16.020 Section E)

PRIOR TO ISSUANCE OF BUILDING PERMIT

Planning Department

96. The applicant shall submit to the Planning Department for permanent filing two 8" X 10" glossy photographic color prints of the approved Color and Materials Board and the colored architectural elevations. All labels on the Color and Materials Board and Elevations shall be readable on the photographic prints.

97. The applicant shall submit a photometric plan, including the parking lot to the Planning Department, which meets the requirements of the Development Code and the Palomar Lighting Ordinance. The parking lot light standards shall be placed in such a way as to not adversely impact the growth potential of the parking lot trees.

98. The final construction plans shall include a photometrics plan showing foot-candle illumination in the parking lot, driveways, drive aisles, pedestrian paths of travel and building entrances. A minimum of one-foot candle illumination shall be maintained throughout the site and a minimum of two foot-candle illumination shall be provided at primary building entrances.

99. Final Construction plans shall provide decorative lighting fixtures shall be provided at the primary entry of each building/structure, subject to the approval of the Director of Planning. Final construction plans shall provide details of all light fixtures, including decorative entry lighting, parking lot lighting and wall mounted lighting.

100. The applicant shall submit a detailed lighting plan for the helipad facility.

101. The elevations for all buildings shall be revised in a manner that all exterior ladders are screened from the public view of Temecula Parkway.

102. Three copies of Construction Landscaping and Irrigation Plans shall be reviewed and approved by the Planning Department. These plans shall conform to the approved conceptual landscape plan, or as amended by these conditions. The location, number, genus, species, and container size of the plants shall be shown. The plans shall be consistent with the Water Efficient Ordinance. The plans shall be accompanied by the following items:

a. Appropriate filing fee (per the City of Temecula Fee Schedule at time of submittal).

b. Provide a minimum five foot wide planter to be installed at the perimeter of all parking areas. Curbs, walkways, etc. are not to infringe on this area.

c. A note on the plans stating that "Two landscape inspections are required: one inspection is required for irrigation lines and a separate inspection is required for final planting inspection."

d. A note on the plans stating that "The contractor shall provide two copies of an agronomic soils report at the first irrigation inspection."

e. One copy of the approved grading plan.

f. Water usage calculations per Chapter 17.32 of the Development Code (Water Efficient Ordinance).

g. Total cost estimate of plantings and irrigation (in accordance with approved plan).

h. The locations of all existing trees that will be saved consistent with the Tentative Map.

i. A landscape maintenance program shall be submitted for approval, which details the proper maintenance of all proposed plant materials to assure proper growth and landscape development for the long-term esthetics of the property. The approved maintenance program shall be provided to the landscape maintenance contractor who shall be responsible to carry out the detailed program.

j. Specifications shall indicate that a minimum of two landscape site inspections will be required. One inspection to verify that the irrigation mainline is capable of being pressurized to 150 psi for a minimum period of two hours without loss of pressure. The second inspection will verify that all irrigation systems have head-to-head coverage, and to verify that all plantings have been installed consistent with the approved construction landscape plans. The applicant/owner shall contact the Planning Department to schedule inspections.

103. The final construction landscape plan shall include the following:

a. A calculation indicating the percentage of the site that is to be landscaped shall be provided on the construction landscape plans. The applicant shall insure that

minimum required code percentages for landscaping are provided to meet the specific zone requirements.

b. The applicant shall field verify adjacent existing street plantings and coordinate proposed plantings to be compatible as approved by the Director of Planning.

c. An appropriate method for screening the gas meters and other externally mounted utility equipment shall be reviewed and approved by the Planning Department.

d. Street trees shall be provided along all streets at the rate of one per every 30 feet of street frontage.

e. Areas proposed for development in another phase occurring not within six months of the completion of the previous phase shall be temporarily tufted, seeded and irrigated for dust and soil erosion control. A note on the grading plan and landscape plan shall be provided.

f. A minimum five foot width planting area shall be provided at the ends of all parking rows. Curbs and concrete walks shall not infringe on this five foot width. The planter length shall be equal to the adjoining parking space. The planter shall contain a minimum of one tree, shrubs and ground covers.

g. Accent trees (minimum 36-inch box size) shall be installed at entries to parking areas in order to define the entry and provide a focal point.

h. Indian Tribe, Faurei varieties shall be provided for Crape Myrtle.

i. Additional trees shall be added on the north, east and west sides of building MOB #2 as approved by the Director of Planning.

j. A combination of large (no less than 24-inch box) Afghan Pines and California Pepper trees (or other large screen trees) shall be provided along the northern perimeter of the project to screen off-site views of the development as approved by the Director of Planning.

k. A landscaped berm shall be provided along the northern property lines adjacent to the residentially zoned lots and DePortola, with mature (24-inchand 36-inch box) screen trees to screen the view of the buildings and reduce the amount of glare from the project site, subject to approval by the Director of Planning. A cross section shall be provided on grading and landscape plans verifying the buffer area.

l. The landscaped area along Temecula Parkway shall include a meandering berm with large shrubs to provide additional screening of the parking lot. The applicant shall provide a combination of shrub plantings and earth berms that can be maintained at a minimum height of three feet around all parking areas to screen parking from off-site views.

m. All areas not designed for buildings, parking, driveways or other useable features shall be landscaped, unless approved by the Director of Planning. The area along the eastern property line, adjacent to the access driveway shall be landscaped, unless it is determined critical habitat not to be disturbed.

n. The Landscape construction plans shall include final color and finish details for all decorative hardscape throughout the project site. Decorative hardscape shall be provided at all primary building entrances and outdoor gathering areas (including the hospital, medical office buildings, cancer center and fitness rehabilitation center).

104. All utilities shall be screened from public view. Landscape construction drawings shall show and label all utilities and provide appropriate screening. Provide a three foot clear zone

around fire check detectors as required by the Fire Department before starting the screen. Group utilities together in order to reduce intrusion. Screening of utilities is not to look like an after-thought. Plan planting beds and design around utilities. Locate all light poles on plans and insure that there are no conflicts with trees.

105. Building Construction Plans shall include detailed outdoor areas (including but not limited to trellises, decorative furniture, fountains, and hardscape) to match the style of the building subject to the approval of the Planning Director.

106. Building plans shall indicate that all roof hatches shall be painted "International Orange."

107. The construction plans shall indicate the application of painted rooftop addressing plotted on a nine-inch grid pattern with 45-inch tall numerals spaced nine inches apart. The numerals shall be painted with a standard nine-inch paint roller using fluorescent yellow paint applied over a contrasting background. The address shall be oriented to the street and placed as closely as possible to the edge of the building closest to the street.

108. All roof mounted equipment shall be screened from public view as determined acceptable by the Director of Planning.

109. All exterior wall mounted ladders (for all buildings) shall be located in a manner that they are not visible from Temecula Parkway.

110. The developer shall provide TCSD verification of arrangements made with the City's franchise solid waste hauler for disposal of construction debris.

111. Prior to the first building permit or installation of additional street lighting which ever occurs first, the developer shall complete the TCSD application process, submit an approved Edison Streetlight Plan and pay the appropriate energy fees related to the transfer of arterial street lighting on Hwy 79 South into the TCSD maintenance program.

Public Works Department

112. Prior to the first building permit, Parcel Map No. 32468 shall be recorded, unless otherwise approved by the Director of Public Works.

113. Improvement plans and/or precise grading plans shall conform to applicable City of Temecula Standards subject to approval by the Director of the Department of Public Works. The following design criteria shall be observed:

a. Flowline grades shall be 0.5% minimum over P.C.C. and 1.00% minimum over A.C. paving.

b. Driveways shall conform to the applicable City of Temecula Standard No. 207A.

c. Street lights shall be installed along the public streets adjoining the site in accordance with City Standard No. 800, 801, 802 and 803.

d. Concrete sidewalks and ramps shall be constructed along public street frontages in accordance with City of Temecula Standard Numbers. 400. 401and 402.

e. All street and driveway centerline intersections shall be at 90 degrees.

f. Landscaping shall be limited in the corner cut-off area of all intersections and adjacent to driveways to provide for minimum sight distance and visibility.

114. The Developer shall design the following public improvements to City of Temecula General Plan standards unless otherwise noted. Plans shall be reviewed and approved by the Director of the Department of Public Works:

a. Improve Highway 79 South (Urban Arterial Highway Standards - 134' R/W) to include installation of sidewalk, street lights, underground utilities, drainage facilities, signing and striping, utilities (including but not limited to water and sewer).

b. Improve De Portola Road (Modified Secondary Arterial (4 lane separated) – 88' R/W) to include installation of pavement, street lights, drainage facilities, signing and striping, and utilities (including but not limited to water and sewer).

c. State Route 79/Redhawk Parkway (Margarita Road) - Provide southbound and eastbound right turn traffic signal overlap.

d. The traffic signal at the intersection of Highway 79 South and Country Glen Way shall be modified to allow a full movement intersection.

115. Private roads shall be designed to meet City public road standards. Unless otherwise approved the following minimum criteria shall be observed in the design of private streets:

a. Dona Lynora (66' R/W) to include the installation of street improvements, paving, curb and gutter, utilities (including but not limited to water and sewer).

b. Private 28-foot wide ingress/egress road to include installation of paving and curb per the approved site plan.

116. The Developer shall construct the following public improvements in conformance with applicable City Standards and subject to approval by the Director of the Department of Public Works:

a. Street improvements, which may include, but not limited to: pavement, curb and gutter, sidewalks, drive approaches, street lights, signing, striping, traffic signal systems, and other traffic control devices as appropriate

b. Storm drain facilities

c. Sewer and domestic water systems

d. Under grounding of proposed utility distribution lines

117. A construction area Traffic Control Plan shall be designed by a registered Civil or Traffic Engineer and reviewed by the Director of the Department of Public Works for any street closure and detour or other disruption to traffic circulation as required by the Department of Public Works. The Traffic Control Plan shall indicate that construction traffic may not use the entrance from DePortola Road to access the site.

118. All access rights, easements for sidewalks for public uses shall be submitted and reviewed by the Director of the Department of Public Works and City Attorney and approved by City Council for dedication to the City where sidewalks meander through private property.

119. The building pad shall be certified to have been substantially constructed in accordance with the approved Precise Grading Plan by a registered Civil Engineer, and the Soil Engineer shall issue a Final Soil Report addressing compaction and site conditions.

120. The Developer shall pay to the City the Public Facilities Development Impact Fee as required by, and in accordance with, Chapter 15.06 of the Temecula Municipal Code and all Resolutions implementing Chapter 15.06.

121. The Developer shall pay to the City the Western Riverside County Transportation Uniform Mitigation Fee (TUMF) Program as required by, and in accordance with, Chapter 15.08 of the Temecula Municipal Code and all Resolutions implementing Chapter 15.08.

In addition to the above Public Works Department Conditions of Approval, THE FOLLOWING CONDITIONS OF APPROVAL SHALL BE COMPLETED PRIOR TO THE ISSUANCE OF THE FIRST BUILDING PERMIT IN PHASE I – (A 140-bed hospital)

122. Parcel Map No. 32468 shall be recorded, unless otherwise approved by the Director of Public Works.

123. The Developer shall design the following public improvements to City of Temecula General Plan standards unless otherwise noted. Plans shall be reviewed and approved by the Director of the Department of Public Works:

a. Highway 79 South (Urban Arterial Highway Standards - 134' R/W) to include installation of sidewalk, street lights, underground utilities, drainage facilities, signing and striping, utilities (including but not limited to water and sewer).

i. Westbound

a) Provide a dedicated right turn lane - 12 foot wide by 200 feet long

b) Provide three thru lanes

c) Provide one left turn lane

ii. Eastbound

a) Provide two left turn lanes

b) Provide two thru lanes and

c) Provide one shared thru/right lane

b. Dona Lynora (66' R/W)

i. Installation of half-street improvements, paving, curb and gutter, utilities (including but not limited to water and sewer)

ii. Restricted to right in/right out vehicular movement

c. Main entry (Country Glen Way) and Highway 79 South

i. Signal modification

ii. Provide a 245' continuous median from Highway 79 South to main drive aisle

iii. Southbound (exiting site)

a) Provide two left turn lanes

b) Provide a 20-foot wide shared thru/right turn lane

iv. Northbound (entering site) – 28 foot wide

d. De Portola Road (Modified Secondary Arterial (4 lane separated) – 88' R/W)

i. Installation of half-street improvements, paving, curb and gutter, utilities (including but not limited to water and sewer)

ii. Provide a 28 foot wide internal ingress/egress connection to De Portola Road

e. State Route 79/Redhawk Parkway (Margarita Road)

i. Provide southbound and eastbound right turn traffic signal overlap.

Building and Safety Department

The Conditions of Approval herein (Building and Safety Department) are not applicable to the projects that fall under the jurisdiction of the State of California OSHPD. These conditions are applicable to the construction documents for projects, specifically the medical office buildings that are within the jurisdiction of the City of Temecula Building and Safety Department.

124. All design components shall comply with applicable provisions of the California Building, Plumbing and Mechanical Codes; California Electrical Code; California Administrative Code, Title 24 Energy Code, California Title 24 Disabled Access Regulations, and the Temecula Municipal Code in place at the time of building permit application submittal.

125. A complete exterior site lighting plans showing compliance with Ordinance No. 655 for the regulation of light pollution. All street-lights and other outdoor lighting shall be shown on electrical plans submitted to the Department of Building and Safety. Any outside lighting shall be hooded and directed so as not to shine directly upon adjoining property or public rights-of-way.

126. A receipt or clearance letter from the Temecula Valley School District shall be submitted to the Building & Safety Department to ensure the payment or exemption from School Mitigation Fees.

127. Obtain all building plans and permit approvals prior to commencement of any construction work.

128. All building and facilities must comply with applicable disabled access regulations. Provide all details on plans (California Disabled Access Regulations effective April 1, 1998).

129. Provide disabled access from the public way to the main entrance of the building.

130. Provide van accessible parking located as close as possible to the main entry.

131. Provide number and type of restroom fixtures, to be in accordance with the provisions of the California Plumbing Code in place at the time of building permit application submittal.

132. Provide appropriate stamp of a registered professional with original signature on plans prior to permit issuance.

133. Provide electrical plan including load calculations and panel schedule, plumbing schematic and mechanical plan for plan review.

134. Truss calculations that are stamped by the engineer of record and the truss manufacturer engineer are required for plan review submittal.

135. Provide precise grading plan at plan check submittal to check accessibility for persons with disabilities.

136. A pre-construction meeting is required with the building inspector prior to the start of the building construction.

Fire Prevention

137. The developer shall furnish three copies of the water system plans to the Fire Prevention Bureau for approval prior to installation for all private water systems pertaining to the fire service loop. Plans shall be signed by a registered civil engineer, contain a Fire Prevention Bureau approval signature block, and conform to hydrant type, location, spacing and minimum fire flow standards as required in these conditions. Hydraulic calculations will be required with the underground submittal to ensure fire flow requirements are being met for the on-site hydrants. The plans must be submitted and approved prior to building permit being issued (CFC Chapter 14, Section 1412 and Chapter 5, Section 501.3).

138. Fire sprinkler plans shall be submitted to the Fire Prevention Bureau for approval for all medical office buildings, except the actual hospital as that is handled by the State. Three sets of sprinkler plans must be submitted by the installing contractor to the Fire Prevention Bureau. These plans must be submitted prior to the issuance of building permit.

139. Fire alarm plans shall be submitted to the Fire Prevention Bureau for approval for all medical office buildings, except the actual hospital as that is handled by the State. Three sets of alarm plans must be submitted by the installing contractor to the Fire Prevention Bureau. The fire alarm system is required to have a dedicated circuit from the house panel. These plans must be submitted prior to the issuance of building permit.

PRIOR TO RELEASE OF POWER, BUILDING OCCUPANCY OR ANY USE ALLOWED BY THIS PERMIT

Planning Department

140. A report of findings, including an itemized inventory of recovered specimens, shall be prepared upon completion of the steps outlined the initial study, under cultural resources. The report shall include a discussion of the significance of all recovered specimens. The report and inventory, when submitted to the Lead Agency (City of Temecula), would signify completion of the program to mitigate impacts to the palentologic and archaeological resources.

141. The applicant shall be required to screen all loading areas and roof mounted mechanical equipment from view of the adjacent residences and public right-of-ways. If upon final inspection it is determined that any mechanical equipment, roof equipment or backs of building parapet walls are visible from any portion of the public right-of-way adjacent to the project site, the developer shall provide screening by constructing a sloping tile covered mansard roof element or other screening if reviewed and approved by the Director of Planning.

142. All required landscape planting and irrigation shall have been installed consistent with the approved construction plans and shall be in a condition acceptable to the Director of Planning. The plants shall be healthy and free of weeds, disease, or pests. The irrigation system shall be properly constructed and in good working order.

143. Performance securities, in amounts to be determined by the Director of Planning, to guarantee the maintenance of the plantings in accordance with the approved construction landscape and irrigation plan shall be filed with the Planning Department for a period of one year from final certificate of occupancy. After that year, if the landscaping and irrigation system have been maintained in a condition satisfactory to the Director of Planning, the bond shall be released upon request by the applicant.

144. Each parking space reserved for the handicapped shall be identified by a permanently affixed reflectorized sign constructed of porcelain on steel, beaded text or equal, displaying the International Symbol of Accessibility. The sign shall not be smaller than 70 square inches in area and shall be centered at the interior end of the parking space at a minimum height of 80 inches from the bottom of the sign to the parking space finished grade, or centered at a minimum height of 36 inches from the parking space finished grade, ground, or sidewalk. A sign shall also be posted in a conspicuous place, at each entrance to the off-street parking facility, not less than 17 inches by 22 inches, clearly and conspicuously stating the following:

"Unauthorized vehicles parked in designated accessible spaces not displaying distinguishing placards or license plates issued for persons with disabilities may be towed away at owner's expense. Towed vehicles may be reclaimed by telephoning (951) 696-3000."

145. In addition to the above requirements, the surface of each parking place shall have a surface identification sign duplicating the Symbol of Accessibility in blue paint of at least three square feet in size.

146. All site improvements including but not limited to parking areas and striping shall be installed prior to occupancy or any use allowed by this permit.

147. All of the foregoing conditions shall be complied with prior to occupancy or any use allowed by this permit.

Public Works Department

PHASE I - A 140-bed hospital.

148. Prior to the first Certificate of Occupancy in Phase I, the following improvements shall be constructed and operational:

a. Highway 79 South

i. Traffic signal modifications at the intersection of Highway 79 South and Country Glen Way

ii. Roadway improvements

a) Westbound

(i) Provide a dedicated right turn lane - 12 foot wide by 200 feet long

(ii) Provide three thru lanes

(iii) Provide one left turn lane

b) Eastbound

(i) Provide two left turn lanes

(ii) Provide two thru lanes and

(iii) Provide one shared thru/right lane

b. Main Entry/Country Glen Way

i. Provide a 245' continuous median from Highway 79 South to main drive aisle

ii. Southbound (exiting site)

a) Provide two left turn lanes

b) Provide a 20-foot wide shared thru/right turn lane

iii. Northbound (entering site) – 28 foot wide

c. De Portola Road (Modified Secondary Arterial (4 lane separated) – 88' R/W)

i. 28-foot wide internal ingress/egress connection from project site to De Portola Road

ii. Roadway improvements

EXHIBIT A

CITY OF TEMECULA

CONDITIONS OF APPROVAL

Planning Application No.:	**PA10-0194**
Project Description:	**A Major Modification to a Development Plan (PA07-0200) for the Temecula Regional Hospital to change the phasing of the project by reducing the number of beds from 170 to 140 in phase I of the project, to modify the building facades of the hospital towers, to relocate the truck loading bays and service yard, and to relocate mechanical equipment from an outdoor area at the service yard to an expanded indoor area at the northern portion of the hospital building on 35.3 acres generally located on the north side of Temecula Parkway, approximately 800 feet west of Margarita Road**
Assessor's Parcel No.	**959-080-001 through 959-080-004 and 959-080-007 through 959-080-010**
MSHCP Category:	**Commercial**
DIF Category:	**Office**
TUMF Category:	**Service Commercial/Office**
Approval Date:	**February 8, 2011**
Expiration Date:	**February 8, 2012**

WITHIN 48 HOURS OF THE APPROVAL OF THIS PROJECT

Planning Department

1. The applicant/developer shall deliver to the Planning Department a cashier's check or money order made payable to the County Clerk in the amount of Sixty-Four Dollars ($64.00) for the County administrative fee, to enable the City to file the Notice of Determination as provided under Public Resources Code Section 21152 and California Code of Regulations Section 15904. If within said 48-hour period the applicant/ developer has not delivered to the Planning Department the check as required above, the approval for the project granted shall be void by reason of failure of condition (Fish and Game Code Section 711.4(c)).

GENERAL REQUIREMENTS

Planning Department

2. The applicant and owner of the real property subject to this condition shall hereby agree to indemnify, protect, hold harmless, and defend the City with Legal Counsel of the City's own selection from any and all claims, actions, awards, judgments, or proceedings against the

d. State Route 79/Redhawk Parkway (Margarita Road)

i. Southbound and eastbound right turn traffic signal overlap

e. Dona Lynora (66' R/W)

i. Installation of half-street improvements, paving, curb and gutter, utilities (including but not limited to water and sewer)

ii. Restricted to right in/right out vehicular movement

149. As deemed necessary by the Department of Public Works, the Developer shall receive written clearance from the following agencies:

a. Rancho California Water District

b. Eastern Municipal Water District

c. Department of Public Works

150. All public improvements, including traffic signal modification, shall be constructed and completed per the approved plans and City standards to the satisfaction of the Director of the Department of Public Works.

151. The existing improvements shall be reviewed. Any appurtenance damaged or broken shall be repaired or removed and replaced to the satisfaction of the Director of the Department of Public Works.

Building and Safety Department

152. Developments with multi-tenant buildings or Shell Buildings shall provide a house electrical meter to provide power for the operation of exterior lighting, irrigation pedestals and fire alarm systems for each building on the site. Developments with Single User Buildings shall clearly show on the plans the location of a dedicated panel in place for the purpose of the operation of exterior lighting and fire alarm systems when a house meter is not specifically proposed.

Fire Prevention

153. Hydrant locations shall be identified by the installation of reflective markers (blue dots) per City Ordinance 15.16.020 Section E.

154. New buildings shall have approved address numbers, building numbers or approved building identification placed in a position that is plainly legible and visible from the street or road fronting the property. These numbers shall contrast with their background. Commercial, multi-family residential and industrial buildings shall have a minimum of 12-inch numbers with suite numbers being a minimum of six inches in size. All suites shall have a minimum of 6-inch high letters and/or numbers on both the front and rear doors (CFC Chapter 5, Section 505.1 and City Ordinance 15.16.020 Section E).

155. A "Knox-Box" shall be provided. The Knox-Box shall be installed a minimum of six feet in height and be located to the right side of the fire riser sprinkler room (CFC Chapter 5, Section 506).

156. All manual and electronic gates on required Fire Department access roads or gates obstructing Fire Department building access shall be provided with the Knox Rapid entry system for emergency access by fire fighting personnel (CFC Chapter 5, Section 506).

157. The applicant shall prepare and submit to the Fire Department for approval, a site plan designating fire lanes with appropriate lane painting and/or signs (CFC Chapter 5, Section 503.3).

158. The developer/applicant shall be responsible for obtaining underground and/or aboveground tank permits for the storage of combustible liquids, flammable liquids or any other hazardous materials from both the County Health Department and Fire Prevention Bureau (CFC Chapter 34 and City Ordinance 15.16.020).

159. A simple plot plan and a simple floor plan, each as an electronic file of the .DWG format, must be submitted to the Fire Prevention Bureau. Contact Fire Prevention for approval of alternative file formats which may be acceptable

Police Department

149. Marked Parking for Disabled Vehicles: All disabled parking stalls on the premises shall be marked in accordance with section 22511.8 of the California Vehicle Code.

OUTSIDE AGENCIES

150. Flood protection shall be provided in accordance with the Riverside County Flood Control District's transmittal dated July 24, 2004, a copy of which is attached. The fee is made payable to the Riverside County Flood Control Water District by either a cashier's check or money order, prior to the issuance of a grading permit (unless deferred to a later date by the District), based upon the prevailing area drainage plan fee.

151. The applicant shall comply with the recommendations set forth in the County of Riverside Department of Environmental Health's transmittal dated July 7, 2007, a copy of which is attached.

152. The applicant shall comply with the recommendations set forth in the Riverside Transit Authority's transmittal dated July 21, 2004, a copy of which is attached.

153. The applicant shall comply with the recommendations set forth in the Rancho California Water District's transmittal dated July 12, 2004, a copy of which is attached.

EXHIBIT A

FINAL CONDITIONS OF APPROVAL

SCANNED:	3-25-08
G DRIVE:	3-25-08
PERMITS PLUS:	3-25-08
INITIALS:	AML
PLANNER:	Papp

ACCEPTANCE OF CONDITIONS OF APPROVAL

I, Tim Rielly, understand that Planning Application No. PA07-0202 has been approved with Conditions of Approval which are set forth in Exhibit A and B. I have read the Conditions of Approval contained in CC Resolution No. 08-12 and understand them. Through signing this ACCEPTANCE OF CONDITIONS OF APPROVAL, I agree and commit to the City of Temecula that I will implement and abide by the Conditions of Approval, including any indemnification requirements imposed by those conditions.

SIGNATURE

DATE 5/17/08

EXHIBIT A

CITY OF TEMECULA

FINAL CONDITIONS OF APPROVAL (HOSPITAL)

Planning Application No.:	**PA07-0202**
Project Description:	**A Conditional Use Permit establishing a 320-bed hospital facility approximately 408,160 square feet within a related Development Plan (PA04-0463) located on the north side of Highway 79 South, approximately 700 feet west of Margarita Road**
Assessor's Parcel Nos.	**959-080-001 through 959-080-004 and 959-080-007 through 959-080-010**
MSHCP Category:	**Commercial**
DIF Category:	**Office**
TUMF Category:	**Service Commercial/Office**
Approval Date:	**January 22, 2008**
Expiration Date:	**January 22, 2010**

WITHIN 48 HOURS OF THE APPROVAL OF THIS PROJECT

Planning Department

1. The applicant/developer shall deliver to the Planning Department a cashier's check or money order made payable to the County Clerk in the amount of Two Thousand Six Hundred Seventy Dollars and seventy-five cents ($2,670.75) which includes the Two Thousand Six Hundred Six Dollars and seventy-five cents ($2,606.75) fee, required by Fish and Game Code Section 711.4(d)(3) plus the Sixty-Four Dollar ($64.00) County administrative fee, to enable the City to file the Notice of Determination for the Environmental Impact Report required under Public Resources Code Section 21152 and California Code of Regulations Section 15904. If within said 48-hour period the applicant/developer has not delivered to the Planning Department the check as required above, the approval for the project granted shall be void by reason of failure of condition (Fish and Game Code Section 711.4(c)).

2. The applicant shall review and sign the Acceptance of Conditions of Approval document that will be provided by the Planning Department staff and return the document with an original signature to the Planning Department.

GENERAL REQUIREMENTS

Planning Department

3. The applicant and owner of the real property subject to this condition shall hereby agree to indemnify, protect, hold harmless, and defend the City with Legal Counsel of the City's own selection from any and all claims, actions, awards, judgments, or proceedings against the City to attack, set aside, annul, or seek monetary damages resulting, directly or indirectly, from any action in furtherance of and the approval of the City, or any agency or instrumentality thereof, advisory agency, appeal board or legislative body including actions approved by the voters of the City, concerning the Planning Application. The City shall be deemed for purposes of this condition, to include any agency or instrumentality thereof, or any of its elected or appointed officials, officers, employees, consultants, contractors, legal counsel, and agents. City shall promptly notify both the applicant and landowner of any claim, action, or proceeding to which this condition is applicable and shall further cooperate fully in the defense of the action. The City reserves the right to take any and all action the City deems to be in the best interest of the City and its citizens in regards to such defense.

4. The applicant shall comply with the Mitigation Monitoring Program for Planning Application Numbers PA07-0198, PA07-0199, PA07-0200, PA07-0201 and PA07-0202.

5. The applicant shall comply with their Statement of Operations dated June 30, 2004, on file with the Planning Department, unless superseded by these Conditions of Approval.

6. This Conditional Use Permit may be revoked pursuant to Section 17.03.080 of the City's Development Code.

7. The City, and its Planning Director, Planning Commission, and City Council retain and reserve the right and jurisdiction to review and modify this Conditional Use Permit (including the Conditions of Approval) based on changed circumstances. Changed circumstances include, but are not limited to the modification of the business, a change in scope, emphasis, size or nature of the business, and the expansion, alteration, reconfiguration or change of use. The reservation of right to review any Conditional Use Permit granted or approved or conditionally approved hereunder by the City, its Planning Director, Planning Commission, and City Council is in addition to, and not in-lieu of, the right of the City, its Planning Director, Planning Commission, and City Council to review and revoke or modify any Conditional Use Permit approved or conditionally approved hereunder for any violations of the conditions imposed on such Conditional Use Permit or for the maintenance of any nuisance condition or other code violation thereon.

8. The permittee shall obtain City approval for any modifications or revisions to the approval of this Conditional Use Permit.

9. This approval shall be used within two years of the approval date; otherwise, it shall become null and void. By use is meant the beginning of substantial construction contemplated by this approval within the two-year period, which is thereafter diligently pursued to completion, or the beginning of substantial utilization contemplated by this approval.

10. If commencement of the use has not occurred within two years of approval of this permit, the permittee may file an application at least 30 days prior to expiration of the Conditional Use Permit, apply for up to 3 one-year extensions of time. Each extension of time shall be granted in one-year increments only.

11. A separate building permit shall be required for all signage (Sign Program may be required).

12. Landscaping installed for the project shall be continuously maintained to the reasonable satisfaction of the Planning Director. If it is determined that the landscaping is not being maintained, the Planning Director shall have the authority to require the property owner to bring the landscaping into conformance with the approved landscape plan. The continued maintenance of all landscaped areas shall be the responsibility of the developer or any successors in interest.

13. The applicant shall paint a three-foot by three-foot section of the building for Planning Department inspection, prior to commencing painting of the building.

14. The applicant shall submit to the Planning Department for permanent filing two 8" X 10" glossy photographic color prints of the approved Color and Materials Board and the colored architectural elevations. All labels on the Color and Materials Board and Elevations shall be readable on the photographic prints.

15. Trash enclosures shall be provided to house all trash receptacles utilized on the site. These shall be clearly labeled on site plan.

16. The development of the premises shall substantially conform to the approved site plan and elevations contained on file with the Planning Department.

17. A construction staging area plan for construction equipment and trash shall be approved by the Director of Planning prior to issuance of a building permit.

18. The applicant shall pursue agreements with all emergency service providers stating that emergency vehicles shall turn off sirens no less than one quarter of a mile from the project site.

19. All of the foregoing conditions shall be complied with prior to occupancy or any use allowed by this permit.

20. The applicant shall obtain the approval of the Aviation Division of Caltrans and the Federal Aviation Administration, if required, to operate the proposed helipad. All construction and operational requirements of Caltrans and the Federal Aviation Administration shall be complied with. The applicant shall provide a copy of these agencies approval documents to the Planning Director within 30 days of their approval action.\

Fire Prevention

21. The Fire Prevention Bureau is required to set a minimum fire flow for residential land division per CFC Appendix III.A, Table A-III-A-1. The developer shall provide for this project, a water system capable of delivering 4,000 GPM at 20-PSI residual operating pressure with a 4-hour duration. The required fire flow may be adjusted during the approval process to reflect changes in design, construction type, or automatic fire protection measures as approved by the Fire Prevention Bureau. The Fire Flow as given above has taken into account all information as provided (CFC 903.2, Appendix III-A).

22. The Fire Prevention Bureau is required to set minimum fire hydrant distances per CFC Appendix III-B, Table A-III-B-1. Super fire hydrants (6" x 4" x 2-2 1/2" outlets) shall be located on Fire Department access roads and adjacent public streets. Hydrants shall be

spaced at 350 feet apart, at each intersection and shall be located no more than 210 feet from any point on the street or Fire Department access road(s) frontage to a hydrant. The required fire flow shall be available from any adjacent hydrant(s) in the system (CFC 903.2, 903.4.2, and Appendix III-B).

23. All traffic calming devices that could impede or slow emergency vehicle access are prohibited, except those expressly approved by the fire prevention bureau individually on a case-by-case basis when they maintain the required travel widths and radii.

24. If construction is phased, each phase shall provide approved access and fire protection prior to any building construction (CFC 8704.2 and 902.2.2). This will include all internal roads, connecting roads between phases, and construction gates. All required access must be in and available prior to and during ALL construction. Phasing is approved on a separate map, and is ultimately subject to final approval in the field.

Police Department

25. All exterior lighting surrounding the project site should be energy-saving and minimized after 11:00 p.m. to comply with the State of California Lighting Ordinance. Furthermore, all exterior lighting must comply with Mt. Palomar Lighting Requirements.

26. All exterior doors should have their own vandal resistant fixtures installed above. The doors shall be illuminated with a minimum one-foot candle of light at ground level, evenly dispersed.

27. All doors, windows, locking mechanisms, hinges, and other miscellaneous hardware shall be commercial or institution grade.

28. Any graffiti painted or marked upon the buildings shall be removed or painted over within 24 hours of being discovered. Notify the Temecula Police Department immediately so a report can be taken.

29. Upon completion of construction, the interior of this facility shall have a monitored alarm system installed and monitored 24 hours a day by a designated private alarm company, to notify the police department immediately of any intrusion. All multi-tenant buildings located within the center should have their own alarm system.

30. All roof hatches shall be painted "International Orange."

31. Any public telephones located on the exterior of this facility should be placed in a well-lighted, highly visible area, and installed with a "call-out only" feature to deter loitering. This feature is not required for public telephones installed within the interior of this facility.

PRIOR TO ISSUANCE OF GRADING PERMITS

Planning Department

32. Provide the Planning Department with a copy of the underground water plans and electrical plans for verification of proper placement of transformer(s) and double detector check prior to final agreement with the utility companies.

33. Double detector check valves shall be either installed underground or internal to the project site at locations not visible from the public right-of-way, subject to review and approval by the Director of Planning.

34. The following shall be included in the Notes Section of the Grading Plan: "If at any time during excavation/construction of the site, archaeological/cultural resources, or any artifacts or other objects which reasonably appears to be evidence of cultural or archaeological resource are discovered, the property owner shall immediately advise the City of such and the City shall cause all further excavation or other disturbance of the affected area to immediately cease. The Director of Planning at his/her sole discretion may require the property to deposit a sum of money it deems reasonably necessary to allow the City to consult and/or authorize an independent, fully qualified specialist to inspect the site at no cost to the City, in order to assess the significance of the find. Upon determining that the discovery is not an archaeological/cultural resource, the Director of Planning shall notify the property owner of such determination and shall authorize the resumption of work. Upon determining that the discovery is an archaeological/cultural resource, the Director of Planning shall notify the property owner that no further excavation or development may take place until a mitigation plan or other corrective measures have been approved by the Director of Planning."

35. Prior to the issuance of grading permits, the developer is required to enter into a Cultural Resources Treatment Agreement with the Pechanga Tribe. This Agreement will address the treatment and disposition of cultural resources and human remains that may be impacted as a result of the development of the Project, as well as provisions for tribal monitors.

36. If cultural resources are discovered during the project construction (inadvertent discoveries), all work in the area of the find shall cease, and a qualified archaeologist and representatives of the Pechanga Tribe shall be retained by the project sponsor to investigate the find, and make recommendations as to treatment and mitigation.

37. A qualified archaeological monitor will be present and will have the authority to stop and redirect grading activities, in consultation with the Pechanga Tribe and their designated monitors, to evaluate the significance of any archaeological resources discovered on the property.

38. Tribal monitors from the Pechanga Tribe shall be allowed to monitor all grading, excavation and groundbreaking activities, including all archaeological surveys, testing, and studies, to be compensated by the developer.

39. The landowner agrees to relinquish ownership of all cultural resources, including all archaeological artifacts that are found on the Project area, to the Pechanga Tribe for proper treatment and disposition.

40. All sacred sites are to be avoided and preserved.

Fire Prevention

41. Maximum cul-de-sac length shall not exceed 1320 feet. Minimum turning radius on any cul-de-sac shall be thirty-seven (37) feet for residential and forty-five (45) feet for commercial (CFC 902.2.2.3, CFC 902.2.2.4).

42. Cul-de-sacs and/or intersections with planters must maintain 24-foot clear unobstructed travel width around the planters, not including parking. Hardscape areas are permissible provided that they meet the 80,000 lb. load requirements and are at road level.

43. Private entry driveways with divider medians must be a minimum of 16 feet wide on each side unless the median is held back 30 feet from face of curb of perpendicular road.

44. Fire Department vehicle access roads shall have an unobstructed width of not less than 24 feet and an unobstructed vertical clearance of not less than 13 feet six inches (CFC 902.2.2.1).

45. Prior to building construction, dead end road ways and streets in excess of one hundred and fifty (150) feet which have not been completed shall have a turnaround capable of accommodating fire apparatus (CFC 902.2.2.4).

PRIOR TO ISSUANCE OF BUILDING PERMIT

Planning Department

46. The applicant shall submit a photometric plan, including the parking lot to the Planning Department, which meets the requirements of the Development Code and the Palomar Lighting Ordinance. The parking lot light standards shall be placed in such a way as to not adversely impact the growth potential of the parking lot trees.

47. A construction staging area plan for construction equipment and trash shall be approved by the Director of Planning prior to issuance of a building permit.

48. All downspouts shall be internalized.

49. Three copies of Construction Landscaping and Irrigation Plans shall be reviewed and approved by the Planning Department. These plans shall conform to the approved conceptual landscape plan, or as amended by these conditions. The location, number, genus, species, and container size of the plants shall be shown. The plans shall be consistent with the Water Efficient Ordinance. The plans shall be accompanied by the following items:

    a. Appropriate filing fee (per the City of Temecula Fee Schedule at time of submittal).

    b. Provide a minimum five-foot wide planter to be installed at the perimeter of all parking areas. Curbs, walkways, etc. are not to infringe on this area.

    c. A note on the plans stating that "Two landscape inspections are required; one inspection is required for irrigation lines and a separate inspection is required for final planting inspection."

    d. A note on the plans stating that "The contractor shall provide two copies of an agronomic soils report at the first irrigation inspection."

    e. One copy of the approved grading plan.

    f. Water usage calculations per Chapter 17.32 of the Development Code (Water Efficient Ordinance).

    g. Total cost estimate of plantings and irrigation (in accordance with approved plan).

    h. The locations of all existing trees that will be saved consistent with the tentative map.

i. A landscape maintenance program shall be submitted for approval, which details the proper maintenance of all proposed plant materials to assure proper growth and landscape development for the long-term esthetics of the property. The approved maintenance program shall be provided to the landscape maintenance contractor who shall be responsible to carry out the detailed program.

j. Specifications shall indicate that a minimum of two landscape site inspections will be required. One inspection to verify that the irrigation mainline is capable of being pressurized to 150 psi for a minimum period of two hours without loss of pressure. The second inspection will verify that all irrigation systems have head-to-head coverage, and to verify that all plantings have been installed consistent with the approved construction landscape plans. The applicant/owner shall contact the Planning Department to schedule inspections.

50. All utilities shall be screened from public view. Landscape construction drawings shall show and label all utilities and provide appropriate screening. Provide a three-foot clear zone around fire check detectors as required by the Fire Department before starting the screen. Group utilities together in order to reduce intrusion. Screening of utilities is not to look like an after-thought. Plan planting beds and design around utilities. Locate all light poles on plans and insure that there are no conflicts with trees.

51. Building Construction Plans shall include detailed outdoor areas (including but not limited to trellises, decorative furniture, fountains, and hardscape) to match the style of the building subject to the approval of the Planning Director.

52. Building plans shall indicate that all roof hatches shall be painted "International Orange."

53. The construction plans shall indicate the application of painted rooftop addressing plotted on a 9-inch grid pattern with 45-inch tall numerals spaced 9-inches apart. The numerals shall be painted with a standard 9-inch paint roller using fluorescent yellow paint applied over a contrasting background. The address shall be oriented to the street and placed as closely as possible to the edge of the building closest to the street.

Fire Prevention

54. Prior to building permit or building construction, all locations where structures are to be built shall have approved Fire Department vehicle access roads. Fire Department access roads shall be an all weather surface for 80,000 lbs. GVW (CFC 8704.2 and 902.2.2.2).

55. Prior to issuance of building permits, the developer shall furnish one copy of the water system plans to the Fire Prevention Bureau for approval prior to installation for all private water systems pertaining to the fire service loop. Plans shall be signed by a registered civil engineer; contain a Fire Prevention Bureau approval signature block; and conform to hydrant type, location, spacing and minimum fire flow standards. Hydraulic calculations will be required with the underground submittal to ensure fire flow requirements are being met for the on site hydrants. The plans must be submitted and approved prior to building permit being issued (CFC 8704.3, 901.2.2.2 and National Fire Protection Association 24 1-4.1).

56. Prior to issuance of building permits, plans for structural protection from vegetation fires shall be submitted to the Fire Prevention Bureau for review and approval. The measures shall include, but are not limited to, enclosing eaves, noncombustible barriers (cement or block walls), and fuel modification zones (CFC Appendix II-A).

PRIOR TO RELEASE OF POWER, BUILDING OCCUPANCY OR ANY USE ALLOWED BY THIS PERMIT

Planning Department

57. Prior to the release of power, occupancy, or any use allowed by this permit, the applicant shall be required to screen all loading areas and roof mounted mechanical equipment from view of the adjacent residences and public right-of-ways. If upon final inspection it is determined that any mechanical equipment, roof equipment or backs of building parapet walls are visible from any portion of the public right-of-way adjacent to the project site, the developer shall provide screening by constructing a sloping tile covered mansard roof element or other screening if reviewed and approved by the Director of Planning.

58. All required landscape planting and irrigation shall be installed consistent with the approved construction plans and shall be in a condition acceptable to the Director of Planning. The plants shall be healthy and free of weeds, disease, or pests. The irrigation system shall be properly constructed and in good working order.

59. Performance securities, in amounts to be determined by the Director of Planning, to guarantee the maintenance of the plantings in accordance with the approved construction landscape and irrigation plan shall be filed with the Planning Department for a period of one year from final Certificate of Occupancy. After that year, if the landscaping and irrigation system have been maintained in a condition satisfactory to the Director of Planning, the bond shall be released upon request by the applicant.

60. Each parking space reserved for the handicapped shall be identified by a permanently affixed reflectorized sign constructed of porcelain on steel, beaded text or equal, displaying the International Symbol of Accessibility. The sign shall not be smaller than 70 square inches in area and shall be centered at the interior end of the parking space at a minimum height of 80 inches from the bottom of the sign to the parking space finished grade, or centered at a minimum height of 36 inches from the parking space finished grade, ground, or sidewalk. A sign shall also be posted in a conspicuous place, at each entrance to the off-street parking facility, not less than 17 inches by 22 inches, clearly and conspicuously stating the following:

> "Unauthorized vehicles parked in designated accessible spaces not displaying distinguishing placards or license plates issued for persons with disabilities may be towed away at owner's expense. Towed vehicles may be reclaimed by telephoning (951) 696-3000."

61. In addition to the above requirements, the surface of each parking place shall have a surface identification sign duplicating the Symbol of Accessibility in blue paint of at least three square feet in size.

62. All site improvements including but not limited to parking areas and striping shall be installed prior to occupancy or any use allowed by this permit.

63. All of the foregoing conditions shall be complied with prior to occupancy or any use allowed by this permit.

Fire Prevention

64. Prior to Occupancy and building final, all locations where structures are to be built shall have approved Fire Department vehicle access roads to within 150 feet to any portion of the facility or any portion of an exterior wall of the building(s). Fire Department access roads shall be an all weather surface designed for 80,000 lbs. GVW with a minimum AC thickness of .25 feet (CFC sec 902).

65. Prior to issuance of a Certificate of Occupancy or building final, "Blue Reflective Markers" shall be installed to identify fire hydrant locations (CFC 901.4.3).

66. Prior to issuance of Occupancy all manual and electronic gates on required Fire Department access roads or gates obstructing Fire Department building access shall be provided with the Knox Rapid entry system for emergency access by firefighting personnel (CFC 902.4).

67. Prior to map recordation the applicant shall submit to the Fire Prevention Bureau a georectified (pursuant to Riverside County standards) digital version of the map including parcel and street centerline information. The electronic file will be provided in a ESRI ArcInfo/ArcView compatible format and projected in a State Plane NAD 83 (California Zone VI) coordinate system. The Bureau must accept the data as to completeness, accuracy and format prior to satisfaction of this condition.

EXHIBIT B

CITY OF TEMECULA

FINAL CONDITIONS OF APPROVAL (HELIPAD)

Planning Application No.:	PA07-0202
Project Description:	A Conditional Use Permit establishing a helipad within a related Development Plan (PA04-0463) located on the north side of Highway 79 South, approximately 700 feet west of Margarita Road
Assessor's Parcel No.	959-080-001 through 959-080-004 and 959-080-007 through 959-080-010
MSHCP Category:	Commercial
DIF Category:	Office
TUMF Category:	Service Commercial/Office
Approval Date:	January 22, 2008
Expiration Date:	January 22, 2010

WITHIN 48 HOURS OF THE APPROVAL OF THIS PROJECT

Planning Department

1. The applicant/developer shall deliver to the Planning Department a cashier's check or money order made payable to the County Clerk in the amount of Two Thousand Six Hundred Seventy Dollars and seventy-five cents ($2,670.75) which includes the Two Thousand Six Hundred Six Dollars and seventy-five cents ($2,606.75) fee, required by Fish and Game Code Section 711.4(d)(3) plus the Sixty-Four Dollar ($64.00) County administrative fee, to enable the City to file the Notice of Determination for the Environmental Impact Report required under Public Resources Code Section 21152 and California Code of Regulations Section 15904. If within said 48-hour period the applicant/developer has not delivered to the Planning Department the check as required above, the approval for the project granted shall be void by reason of failure of condition (Fish and Game Code Section 711.4(c)).

2. The applicant shall review and sign the Acceptance of Conditions of Approval document that will be provided by the Planning Department staff and return the document with an original signature to the Planning Department.

GENERAL REQUIREMENTS

Planning Department

3. The applicant and owner of the real property subject to this condition shall hereby agree to indemnify, protect, hold harmless, and defend the City with Legal Counsel of the City's own selection from any and all claims, actions, awards, judgments, or proceedings against the

City to attack, set aside, annul, or seek monetary damages resulting, directly or indirectly, from any action in furtherance of and the approval of the City, or any agency or instrumentality thereof, advisory agency, appeal board or legislative body including actions approved by the voters of the City, concerning the Planning Application. The City shall be deemed for purposes of this condition, to include any agency or instrumentality thereof, or any of its elected or appointed officials, officers, employees, consultants, contractors, legal counsel, and agents. City shall promptly notify both the applicant and landowner of any claim, action, or proceeding to which this condition is applicable and shall further cooperate fully in the defense of the action. The City reserves the right to take any and all action the City deems to be in the best interest of the City and its citizens in regards to such defense.

4. The applicant shall comply with the Mitigation Monitoring Program for Planning Application Numbers PA07-0198, PA07-0199, PA07-0200, PA07-0201 and PA07-0202.

5. The applicant shall comply with their Statement of Operations dated June 30, 2004, on file with the Planning Department, unless superseded by these Conditions of Approval.

6. This Conditional Use Permit may be revoked pursuant to Section 17.03.080 of the City's Development Code.

7. The City, and its Planning Director, Planning Commission, and City Council retain and reserve the right and jurisdiction to review and modify this Conditional Use Permit (including the Conditions of Approval) based on changed circumstances. Changed circumstances include, but are not limited to the modification of the business, a change in scope, emphasis, size or nature of the business, and the expansion, alteration, reconfiguration or change of use. The reservation of right to review any Conditional Use Permit granted or approved or conditionally approved hereunder by the City, its Planning Director, Planning Commission, and City Council is in addition to, and not in-lieu of, the right of the City, its Planning Director, Planning Commission, and City Council to review and revoke or modify any Conditional Use Permit approved or conditionally approved hereunder for any violations of the conditions imposed on such Conditional Use Permit or for the maintenance of any nuisance condition or other code violation thereon.

8. The permittee shall obtain City approval for any modifications or revisions to the approval of this Conditional Use Permit.

9. This approval shall be used within two years of the approval date; otherwise, it shall become null and void. By use is meant the beginning of substantial construction contemplated by this approval within the two-year period, which is thereafter diligently pursued to completion, or the beginning of substantial utilization contemplated by this approval.

10. If commencement of the use has not occurred within two years of approval of this permit, the permittee may file an application at lest thirty days prior to expiration of the conditional use permit, apply for up to 3 one-year extensions of time. Each extension of time shall be granted in one-year increments only.

11. A separate building permit shall be required for all signage (Sign Program may be required).

12. Landscaping installed for the project shall be continuously maintained to the reasonable satisfaction of the Planning Director. If it is determined that the landscaping is not being maintained, the Planning Director shall have the authority to require the property owner to bring the landscaping into conformance with the approved landscape plan. The continued maintenance of all landscaped areas shall be the responsibility of the developer or any successors in interest.

13. The development of the premises shall substantially conform to the approved site plan and elevations contained on file with the Planning Department.

14. A construction staging area plan for construction equipment and trash shall be approved by the Director of Planning prior to issuance of a building permit.

15. All of the foregoing conditions shall be complied with prior to occupancy or any use allowed by this permit.

16. The flight path for all helicopter traffic arriving and departing the project site shall be limited to the Highway 79 South corridor and commercial areas, unless it is determined unsafe due to weather conditions. Flights over residential areas shall be avoided to the greatest extent possible.

17. The Applicant shall revise the site plan and provide a detailed elevation drawing to show a decorative fence no less than four feet in height around the helipad, subject to the approval of the Planning Director. Said fence shall be constructed in a manner that deflects horizontal wind velocities caused by the rotation of rotor blades, providing all FAR Part 77 imaginary surfaces and the surface of the area remain obstruction free, per Section 1710.020.P of the City of Temecula Development Code. **(Added by City Council, January 22, 2008).**

PRIOR TO SUBMITTING HOSPITAL PLANS TO THE CALIFORNIA OFFICE OF STATEWIDE HEALTH AND PLANNING DEVELOPMENT (OSHPOD)

18. The applicant shall obtain the approval of the Aviation Division of Caltrans and the Federal Aviation Administration, if required, to operate the proposed helipad. All construction and operational requirements shall comply with Caltrans and the Federal Aviation Administration. shall be complied with. The applicant shall provide a copy of these agencies approval documents to the Planning Director within 30 days of their approval action.\

Fire Prevention

19. Final fire and life safety conditions will be addressed when building plans are reviewed by the Fire Prevention Bureau. These conditions will be based on occupancy, use, the California Building Code (CBC), California Fire Code (CFC), and related codes which are in force at the time of building plan submittal.

Police Department

20. All exterior lighting surrounding the project site should be energy-saving and minimized after 11:00 p.m. to comply with the State of California Lighting Ordinance. Furthermore, all exterior lighting must comply with Mt. Palomar Lighting Requirements.

21. All exterior doors should have their own vandal resistant fixtures installed above. The doors shall be illuminated with a minimum one-foot candle of light at ground level, evenly dispersed.

22. All doors, windows, locking mechanisms, hinges, and other miscellaneous hardware shall be commercial or institution grade.

23. Any graffiti painted or marked upon the buildings shall be removed or painted over within 24 hours of being discovered. Notify the Temecula Police Department immediately so a report can be taken.

24. Upon completion of construction, the interior of this facility shall have a monitored alarm system installed and monitored 24-hours a day by a designated private alarm company, to notify the police department immediately of any intrusion. All multi-tenant buildings located within the center should have their own alarm system.

25. Any public telephones located on the exterior of this facility should be placed in a well-lighted, highly visible area, and installed with a "call-out only" feature to deter loitering. This feature is not required for public telephones installed within the interior of this facility.

PRIOR TO ISSUANCE OF GRADING PERMITS

Planning Department

26. Provide the Planning Department with a copy of the underground water plans and electrical plans for verification of proper placement of transformer(s) and double detector check prior to final agreement with the utility companies.

27. Double detector check valves shall be either installed underground or internal to the project site at locations not visible from the public right-of-way, subject to review and approval by the Director of Planning.

28. The following shall be included in the Notes Section of the Grading Plan: "If at any time during excavation/construction of the site, archaeological/cultural resources, or any artifacts or other objects which reasonably appears to be evidence of cultural or archaeological resource are discovered, the property owner shall immediately advise the City of such and the City shall cause all further excavation or other disturbance of the affected area to immediately cease. The Director of Planning at his/her sole discretion may require the property to deposit a sum of money it deems reasonably necessary to allow the City to consult and/or authorize an independent, fully qualified specialist to inspect the site at no cost to the City, in order to assess the significance of the find. Upon determining that the discovery is not an archaeological/cultural resource, the Director of Planning shall notify the property owner of such determination and shall authorize the resumption of work. Upon determining that the discovery is an archaeological/cultural resource, the Director of Planning shall notify the property owner that no further excavation or development may take place until a mitigation plan or other corrective measures have been approved by the Director of Planning."

29. Prior to the issuance of grading permits, the developer is required to enter into a Cultural Resources Treatment Agreement with the Pechanga Tribe. This Agreement will address the treatment and disposition of cultural resources and human remains that may be impacted as a result of the development of the Project, as well as provisions for tribal monitors.

30. If cultural resources are discovered during the project construction (inadvertent discoveries), all work in the area of the find shall cease, and a qualified archaeologist and representatives of the Pechanga Tribe shall be retained by the project sponsor to investigate the find, and make recommendations as to treatment and mitigation.

31. A qualified archaeological monitor will be present and will have the authority to stop and redirect grading activities, in consultation with the Pechanga Tribe and their designated monitors, to evaluate the significance of any archaeological resources discovered on the property.

32. Tribal monitors from the Pechanga Tribe shall be allowed to monitor all grading, excavation and groundbreaking activities, including all archaeological surveys, testing, and studies, to be compensated by the developer.

33. The landowner agrees to relinquish ownership of all cultural resources, including all archaeological artifacts that are found on the Project area, to the Pechanga Tribe for proper treatment and disposition.

34. All sacred sites are to be avoided and preserved.

PRIOR TO ISSUANCE OF BUILDING PERMIT

Planning Department

35. The applicant shall submit a photometric plan, including the parking lot to the Planning Department, which meets the requirements of the Development Code and the Palomar Lighting Ordinance. The parking lot light standards shall be placed in such a way as to not adversely impact the growth potential of the parking lot trees.

36. A construction staging area plan for construction equipment and trash shall be approved by the Director of Planning prior to issuance of a building permit.

37. Three copies of Construction Landscaping and Irrigation Plans shall be reviewed and approved by the Planning Department. These plans shall conform to the approved conceptual landscape plan, or as amended by these conditions. The location, number, genus, species, and container size of the plants shall be shown. The plans shall be consistent with the Water Efficient Ordinance. The plans shall be accompanied by the following items:

    a. Appropriate filing fee (per the City of Temecula Fee Schedule at time of submittal).

    b. Provide a minimum five foot wide planter to be installed at the perimeter of all parking areas. Curbs, walkways, etc. are not to infringe on this area.

    c. A note on the plans stating that "Two landscape inspections are required: one inspection is required for irrigation lines and a separate inspection is required for final planting inspection."

d. A note on the plans stating that "The contractor shall provide two copies of an agronomic soils report at the first irrigation inspection."

e. One copy of the approved grading plan.

f. Water usage calculations per Chapter 17.32 of the Development Code (Water Efficient Ordinance).

g. Total cost estimate of plantings and irrigation (in accordance with approved plan).

h. The locations of all existing trees that will be saved consistent with the tentative map.

i. A landscape maintenance program shall be submitted for approval, which details the proper maintenance of all proposed plant materials to assure proper growth and landscape development for the long-term esthetics of the property. The approved maintenance program shall be provided to the landscape maintenance contractor who shall be responsible to carry out the detailed program.

j. Specifications shall indicate that a minimum of two landscape site inspections will be required. One inspection to verify that the irrigation mainline is capable of being pressurized to 150 psi for a minimum period of two hours without loss of pressure. The second inspection will verify that all irrigation systems have head-to-head coverage, and to verify that all plantings have been installed consistent with the approved construction landscape plans. The applicant/owner shall contact the Planning Department to schedule inspections.

38. All utilities shall be screened from public view. Landscape construction drawings shall show and label all utilities and provide appropriate screening. Provide a 3' clear zone around fire check detectors as required by the Fire Department before starting the screen. Group utilities together in order to reduce intrusion. Screening of utilities is not to look like an after-thought. Plan planting beds and design around utilities. Locate all light poles on plans and insure that there are no conflicts with trees.

Fire Prevention

39. Prior to building permit or building construction, all locations where structures are to be built shall have approved Fire Department vehicle access roads. Fire Department access roads shall be an all weather surface for 80,000 lbs. GVW (CFC 8704.2 and 902.2.2.2).

40. Prior to issuance of building permits, the developer shall furnish one copy of the water system plans to the Fire Prevention Bureau for approval prior to installation for all private water systems pertaining to the fire service loop. Plans shall be signed by a registered civil engineer; contain a Fire Prevention Bureau approval signature block; and conform to hydrant type, location, spacing and minimum fire flow standards. Hydraulic calculations will be required with the underground submittal to ensure fire flow requirements are being met for the on site hydrants. The plans must be submitted and approved prior to building permit being issued (CFC 8704.3, 901.2.2.2 and National Fire Protection Association 24 1-4.1).

41. Prior to issuance of building permits, plans for structural protection from vegetation fires shall be submitted to the Fire Prevention Bureau for review and approval. The measures shall include, but are not limited to, enclosing eaves, noncombustible barriers (cement or block walls), and fuel modification zones (CFC Appendix II-A).

PRIOR TO RELEASE OF POWER, BUILDING OCCUPANCY OR ANY USE ALLOWED BY THIS PERMIT

Planning Department

42. Prior to the release of power, occupancy, or any use allowed by this permit, the applicant shall be required to screen all loading areas and mechanical equipment from view of the adjacent residences and public right-of-ways. If upon final inspection it is determined that any mechanical equipment is visible from any portion of the public right-of-way adjacent to the project site, the developer shall provide screening by constructing appropriate screening reviewed and approved by the Director of Planning.

43. All required landscape planting and irrigation shall have been installed consistent with the approved construction plans and shall be in a condition acceptable to the Director of Planning. The plants shall be healthy and free of weeds, disease, or pests. The irrigation system shall be properly constructed and in good working order.

44. Performance securities, in amounts to be determined by the Director of Planning, to guarantee the maintenance of the plantings in accordance with the approved construction landscape and irrigation plan shall be filed with the Planning Department for a period of one year from final certificate of occupancy. After that year, if the landscaping and irrigation system have been maintained in a condition satisfactory to the Director of Planning, the bond shall be released upon request by the applicant.

45. Each parking space reserved for the handicapped shall be identified by a permanently affixed reflectorized sign constructed of porcelain on steel, beaded text or equal, displaying the International Symbol of Accessibility. The sign shall not be smaller than 70 square inches in area and shall be centered at the interior end of the parking space at a minimum height of 80 inches from the bottom of the sign to the parking space finished grade, or centered at a minimum height of 36 inches from the parking space finished grade, ground, or sidewalk. A sign shall also be posted in a conspicuous place, at each entrance to the off-street parking facility, not less than 17 inches by 22 inches, clearly and conspicuously stating the following:

> "Unauthorized vehicles parked in designated accessible spaces not displaying distinguishing placards or license plates issued for persons with disabilities may be towed away at owner's expense. Towed vehicles may be reclaimed by telephoning (951) 696-3000."

46. In addition to the above requirements, the surface of each parking place shall have a surface identification sign duplicating the Symbol of Accessibility in blue paint of at least three square feet in size.

47. All site improvements including but not limited to parking areas and striping shall be installed prior to occupancy or any use allowed by this permit.

48. All of the foregoing conditions shall be complied with prior to occupancy or any use allowed by this permit.

Fire Prevention

49. Prior to Occupancy and building final, all locations where structures are to be built shall have approved Fire Department vehicle access roads to within 150 feet to any portion of the facility or any portion of an exterior wall of the building(s). Fire Department access roads

shall be an all weather surface designed for 80,000 lbs. GVW with a minimum AC thickness of .25 feet (CFC sec 902).

50. Prior to issuance of a Certificate of Occupancy or building final, "Blue Reflective Markers" shall be installed to identify fire hydrant locations (CFC 901.4.3).

51. Prior to issuance of Occupancy all manual and electronic gates on required Fire Department access roads or gates obstructing Fire Department building access shall be provided with the Knox Rapid entry system for emergency access by firefighting personnel (CFC 902.4).

52. Prior to map recordation the applicant shall submit to the Fire Prevention Bureau a georectified (pursuant to Riverside County standards) digital version of the map including parcel and street centerline information. The electronic file will be provided in a ESRI ArcInfo/ArcView compatible format and projected in a State Plane NAD 83 (California Zone VI) coordinate system. The Bureau must accept the data as to completeness, accuracy and format prior to satisfaction of this condition.

EXHIBIT A

FINAL CONDITIONS OF APPROVAL

SCANNED:	3-25-08
G DRIVE:	3-25-08
PERMITS PLUS:	3-25-08
INITIALS:	cmf
PLANNER:	Papp

ACCEPTANCE OF CONDITIONS OF APPROVAL

I, Tim Rielly, understand that Planning Application No. PA07-0200 has been approved with Conditions of Approval which are set forth in Exhibit A. I have read the Conditions of Approval contained in CC Resolution No. 08-13 and understand them. Through signing this ACCEPTANCE OF CONDITIONS OF APPROVAL, I agree and commit to the City of Temecula that I will implement and abide by the Conditions of Approval, including any indemnification requirements imposed by those conditions.

SIGNATURE

5/12/08
DATE

EXHIBIT A

CITY OF TEMECULA

FINAL CONDITIONS OF APPROVAL

Planning Application No.:	PA07-0200
Project Description:	A Development Plan to construct a 320-bed hospital facility, approximately 408,160 square feet in size, two medical office buildings totaling 140,000 square feet, a 10,000 square foot cancer center and an 8,000 square foot fitness rehabilitation center, all totaling approximately 566,160 square feet, located on the north side of Highway 79 South, approximately 700 feet west of Margarita Road
Assessor's Parcel No.	959-080-001 through 959-080-004 and 959-080-007 through 959-080-010
MSHCP Category:	Commercial
DIF Category:	Office
TUMF Category:	Service Commercial/Office
Approval Date:	January 22, 2008
Expiration Date:	January 22, 2010

WITHIN 48 HOURS OF THE APPROVAL OF THIS PROJECT

Planning Department

1. The applicant/developer shall deliver to the Planning Department a cashier's check or money order made payable to the County Clerk in the amount of Two Thousand Six Hundred Seventy Dollars and seventy-five cents ($2,670.75) which includes the Two Thousand Six Hundred Six Dollar and seventy-five cents ($2,606.75) fee, required by Fish and Game Code Section 711.4(d)(3) plus the Sixty-Four Dollar ($64.00) County administrative fee, to enable the City to file the Notice of Determination for the Environmental Impact Report required under Public Resources Code Section 21152 and California Code of Regulations Section 15904. If within said 48-hour period the applicant/developer has not delivered to the Planning Department the check as required above, the approval for the project granted shall be void by reason of failure of condition (Fish and Game Code Section 711.4(c)).

2. The applicant shall review and sign the Acceptance of Conditions of Approval document that will be provided by the Planning Department staff and return the document with an original signature to the Planning Department.

GENERAL REQUIREMENTS

Planning Department

3. The applicant and owner of the real property subject to this condition shall hereby agree to indemnify, protect, hold harmless, and defend the City with Legal Counsel of the City's own selection from any and all claims, actions, awards, judgments, or proceedings against the City to attack, set aside, annul, or seek monetary damages resulting, directly or indirectly, from any action in furtherance of and the approval of the City, or any agency or instrumentality thereof, advisory agency, appeal board or legislative body including actions approved by the voters of the City, concerning the Planning Application. The City shall be deemed for purposes of this condition, to include any agency or instrumentality thereof, or any of its elected or appointed officials, officers, employees, consultants, contractors, legal counsel, and agents. City shall promptly notify both the applicant and landowner of any claim, action, or proceeding to which this condition is applicable and shall further cooperate fully in the defense of the action. The City reserves the right to take any and all action the City deems to be in the best interest of the City and its citizens in regards to such defense.

4. The permittee shall obtain City approval for any modifications or revisions to the approval of this project.

5. This approval shall be used within two years of the approval date; otherwise, it shall become null and void. By use is meant the beginning of substantial construction contemplated by this approval within the two-year period, which is thereafter diligently pursued to completion, or the beginning of substantial utilization contemplated by this approval.

6. The Director of Planning may, upon an application being filed within 30 days prior to expiration, and for good cause, grant a time extension of up to 3 one-year extensions of time, one year at a time.

7. A separate building permit shall be required for all signage.

8. Prior to the approval and issuance of any permanent signs, a sign program shall be submitted for review and approval for the project site.

9. The development of the premises shall substantially conform to the approved site plan and elevations contained on file with the Planning Department.

10. Landscaping installed for the project shall be continuously maintained to the reasonable satisfaction of the Planning Director. If it is determined that the landscaping is not being maintained, the Planning Director shall have the authority to require the property owner to bring the landscaping into conformance with the approved landscape plan. The continued maintenance of all landscaped areas shall be the responsibility of the developer or any successors in interest.

11. The applicant shall paint a three-foot by three-foot section of the building for Planning Department inspection, prior to commencing painting of the building.

12. The applicant shall submit to the Planning Department for permanent filing two 8" X 10" glossy photographic color prints of the approved Color and Materials Board and the colored

architectural elevations. All labels on the Color and Materials Board and Elevations shall be readable on the photographic prints.

13. The Conditions of Approval specified in this resolution, to the extent specific items, materials, equipment, techniques, finishes or similar matters are specified, shall be deemed satisfied by staffs' prior approval of the use or utilization of an item, material, equipment, finish or technique that City staff determines to be the substantial equivalent of that required by the Condition of Approval. Staff may elect to reject the request to substitute, in which case the real party in interest may appeal, after payment of the regular cost of an appeal, the decision to the Planning Commission for its decision.

Material	Color
Stucco Color No. 1:	Senergy, Parchment, # 342
Stucco Color No. 2:	Senergy, Walden, # 3104
Tile Base:	Daltile, 12" x 12" Continental Slate, Indian Red CS51
Aluminum Panel:	Centria, 9910 LT Seawolf
Ceramic Roof Tile:	Monier Lifetile, Terra Cotta Flashed
Tinted Glass:	Viracon, Bronze VE 4-2M
Window Frame:	Kawneer, Medium Bronze Kynar 500 Fluorocarbon

14. Trash enclosures shall be provided to house all trash receptacles utilized on the site. These shall be clearly labeled on site plan.

15. The Condition of Approval specified in this resolution, to the extent specific items, materials, equipment, techniques, finishes or similar matters are specified, shall be deemed satisfied by staff prior to approval of the use or utilization of an item, material, equipment, finish, technique that City staff determines to be the substantial equivalent of that required by the Condition of Approval. Staff may elect to reject the request to substitute, in which case the real party in interest may appeal, after payment of the regular cost of an appeal, the decision to the Planning Commission for its decision.

16. All utilities shall be screened from view. Landscape construction drawings shall show and label all utilities and provide appropriate screening. A three-foot clear zone shall be provided around fire check detectors as required by the Fire Department before starting the screen. Utilities shall be grouped together in order to reduce intrusion. Screening of utilities shall not look like an after-thought. Planting beds shall be designed around utilities. All light poles shall be located on the landscape plans and the applicant shall insure that there are no conflicts with trees.

17. The applicant shall insure that mature plantings will not interfere with utilities, adjacent site existing structures and landscaping and traffic sight lines.

18. All requirements of Development Code Chapter 17.32 (Water Efficient Landscape Design) are required to be met.

19. The applicant shall comply with the Mitigation Monitoring Program for the project as attached.

20. The split rail fencing for the multi-use trail proposed along the northern property lines, adjacent to the residences shall be extended from the current location to the western edge of the property line. Said fence shall be a continuous fence beginning from the secondary driveway at DePortola to the western property line. **(Added by City Council, January 22, 2008).**

Police Department

21. Graffiti: Any graffiti painted or marked upon the building shall be removed or painted over within twenty-four (24) hours of being discovered. Notify the Temecula Police Department immediately so a report can be taken.

22. Crime Prevention: Any business desiring a business security survey of their location can contact the crime prevention unit of the Temecula Police Department.

23. Public Telephones: Any public telephones located on the exterior of the building should be placed in a well-lighted, highly visible area, and installed with a "call-out only" feature to deter loitering. This feature is not required for public telephones installed within the interior of the building.

24. Landscaping: Applicant shall ensure all landscaping surrounding the building are kept at a height of no more than three feet or below the ground floor windowsills. Plants, hedges and shrubbery should be defensible plants to deter would-be intruders from breaking into the building utilizing lower level windows.

    a. The placement of all landscaping should comply with guidelines from Crime Prevention Through Environmental Design (CPTED).

25. Lighting: All parking lot lighting surrounding the complex should be energy-saving and minimized after hours of darkness and in compliance with the State of California Lighting Ordinance. Furthermore, all exterior lighting must comply with Mt. Palomar Lighting Requirements.

26. All exterior doors should have their own vandal resistant fixtures installed above. The doors shall be illuminated with a minimum one foot candle of light at ground level, evenly dispersed.

Building Department

27. Trash enclosures, patio covers, light standards, and any block walls if not on the approved building plans, will require separate approvals and permits.

28. Signage shall be posted conspicuously at the entrance to the project that indicates the hours of construction, shown below, as allowed by the City of Temecula Ordinance No. 0-90-04, specifically Section G (1) of Riverside County Ordinance No. 457.73, for any site within one-quarter mile of an occupied residence.

Monday-Friday	6:30 a.m. – 6:30 p.m.
Saturday	7:00 a.m. – 6:30 p.m.

No work is permitted on Sundays or Government Holidays

Community Services Department

29. The developer shall contact the City's franchised solid waste hauler for disposal of construction debris. Only the City's franchisee may haul construction debris.

30. All trash enclosures shall be large enough to accommodate a recycling bin, as well as a regular solid waste container.

31. The property owner or private maintenance association shall maintain all parkways, perimeter landscaping, trail, walls, fences and on site lighting.

32. The developer shall comply with the Public Art Ordinance.

Fire Prevention

33. Final fire and life safety conditions will be addressed when building plans are reviewed by the Fire Prevention Bureau. These conditions will be based on occupancy, use, the California Building Code (CBC), California Fire Code (CFC), and related codes which are in force at the time of building plan submittal.

34. The Fire Prevention Bureau is required to set a minimum fire flow for residential land division per CFC Appendix III.A, Table A-III-A-1. The developer shall provide for this project, a water system capable of delivering 4,000 GPM at 20-PSI residual operating pressure with a 4 - hour duration. The required fire flow may be adjusted during the approval process to reflect changes in design, construction type, or automatic fire protection measures as approved by the Fire Prevention Bureau. The Fire Flow as given above has taken into account all information as provided (CFC 903.2, Appendix III-A).

35. The Fire Prevention Bureau is required to set minimum fire hydrant distances per CFC Appendix III-B, Table A-III-B-1. Super fire hydrants (6" x 4" x 2-2 1/2" outlets) shall be located on Fire Department access roads and adjacent public streets. Hydrants shall be spaced at 350 feet apart, at each intersection and shall be located no more than 210 feet from any point on the street or Fire Department access road(s) frontage to a hydrant. The required fire flow shall be available from any adjacent hydrant(s) in the system (CFC 903.2, 903.4.2, and Appendix III-B).

36. All traffic calming devices that could impede or slow emergency vehicle access are prohibited, except those expressly approved by the fire prevention bureau individually on a case by case basis when they maintain the required travel widths and radii.

37. If construction is phased, each phase shall provide approved access and fire protection prior to any building construction (CFC 8704.2 and 902.2.2). This will include all internal roads, connecting roads between phases, and construction gates. All required access must be in and available prior to and during ALL construction. Phasing is approved on a separate map, and is ultimately subject to final approval in the field.

Public Works Department

38. A Grading Permit for either rough and/or precise grading, including all on-site flat work and improvements, shall be obtained from the Department of Public Works prior to commencement of any construction outside of the City-maintained street right-of way.

39. An Encroachment Permit shall be obtained from the Department of Public Works prior to commencement of any construction within an existing or proposed City right-of-way.

40. All improvement plans and grading plans shall be coordinated for consistency with adjacent projects and existing improvements contiguous to the site and shall be submitted on standard 24" x 36" City of Temecula mylars.

41. All on-site drainage facilities shall be maintained by a private maintenance association or property owner.

42. All utilities, except electrical lines rated 34kv or greater, shall be installed underground.

43. The driveway on De Portola Road will be restricted to right-in/right-out/left-in movements.

PRIOR TO ISSUANCE OF GRADING PERMITS

Planning Department

44. The applicant shall submit seven complete sets of final approved plans to the Planning Department with the following revisions shown on the plans. Planning staff will stamp these plans as approved for distribution to each department and the applicant.

45. The Landscape plan shall be revised as follows:

    a. The applicant shall provide a vines on the screening wall at the loading dock area, subject to the approval of the Planning Director.

    b. The landscape plan shall provide shrubs, vines and/or other acceptable screening methods to screen the oxygen storage container in the loading dock area, subject to the approval of the Planning Director.

    c. The applicant shall revise the landscape plan to show final color and finish details for all decorative hardscape throughout the project site. Decorative hardscape shall be provided at all primary building entrances and outdoor gathering areas (including the hospital, medical office buildings, cancer center and fitness rehabilitation center).

    d. A minimum of one broad canopy type tree shall be provided per every four parking spaces. The tree shall be provided in close proximity to the parking spaces it is to shade.

    e. One landscape finger shall be provided per 10 parking spaces. The interior finger planting width shall be a minimum of five feet wide with the length equal to the adjoining parking space. Curbs and concrete walks shall not infringe on this five foot width. The planter shall contain a minimum of one tree with surrounding groundcover or shrubs or both. The grading plans shall be revised as necessary to reflect this requirement.

46. The elevations for all buildings shall be revised in a manner that all exterior ladders are screened from the public view of Highway 79 South.

47. The applicant shall submit a separate plan, entitled outdoor furniture detail plan, showing details of all outdoor furniture, subject to the approval of the Director of Planning. Outdoor furniture shall be decorative and of high quality appearance.

48. The applicant shall provide a detailed elevation drawing of the water and boulder feature at the main entrance, near the porte-cochere. Said feature shall be subject to the approval of the Director of Planning.

49. The applicant shall submit cross section verifying that all roof mounted equipment will be screened from public view as determined acceptable by the Director of Planning.

50. The elevations and roof plans shall show internalized downspouts for all buildings and structures, excluding trash enclosures.

51. Trash enclosures shall be shown on the site plan, landscape plan and elevations and shall comply with the following:

    a. Trash enclosures shall be provided to house all trash receptacles utilized on the site.

    b. All trash enclosures shall blend with the architecture of the overall center and include a decorative roof type feature as approved by the Director of Planning.

    c. Trash enclosures shall be screened from view. The applicant shall provide shrubs and wall vines on three sides of enclosures as required to provide screening.

52. The elevations shall be revised to show decorative lighting fixtures at the primary entry of each building/structure, subject to the approval of the Director of Planning. Details of all light fixtures, including decorative entry lighting and wall mounted lighting shall be provided on the plans.

53. The Applicant shall revise the site plan and provide a detailed elevation drawing to show a decorative fence no less than four feet in height around the helipad, subject to the approval of the Planning Director. Said fence shall be constructed in a manner that deflects horizontal wind velocities caused by the rotation of rotor blades, providing all FAR Part 77 imaginary surfaces and the surface of the area remain obstruction free, per Section 1710.020.P of the City of Temecula Development Code.

54. Provide the Planning Department with a copy of the underground water plans and electrical plans for verification of proper placement of transformer(s) and double detector check prior to final agreement with the utility companies.

55. Double detector check valves shall be either installed underground or internal to the project site at locations not visible from the public right-of-way, subject to review and approval by the Director of Planning.

56. The following shall be included in the Notes Section of the Grading Plan: "If at any time during excavation/construction of the site, archaeological/cultural resources, or any artifacts or other objects which reasonably appears to be evidence of cultural or archaeological resource are discovered, the property owner shall immediately advise the City of such and the City shall cause all further excavation or other disturbance of the affected area to immediately cease. The Director of Planning at his/her sole discretion may require the property to deposit a sum of money it deems reasonably necessary to allow the City to consult and/or authorize an independent, fully qualified specialist to inspect the site at no cost to the City, in order to assess the significance of the find. Upon determining that the discovery is not an archaeological/cultural resource, the Director of Planning shall notify the property owner of such determination and shall authorize the resumption of work. Upon

determining that the discovery is an archaeological/cultural resource, the Director of Planning shall notify the property owner that no further excavation or development may take place until a mitigation plan or other corrective measures have been approved by the Director of Planning."

57. CR-1 Prior to the issuance of grading permits, the developer is required to enter into a Cultural Resources Treatment Agreement with the Pechanga Tribe. This Agreement will address the treatment and disposition of cultural resources and human remains that may be impacted as a result of the development of the Project, as well as provisions for tribal monitors.

58. CR-2 If cultural resources are discovered during the project construction (inadvertent discoveries), all work in the area of the find shall cease, and a qualified archaeologist and representatives of the Pechanga Tribe shall be retained by the project sponsor to investigate the find, and make recommendations as to treatment and mitigation.

59. CR-3 A qualified archaeological monitor will be present and will have the authority to stop and redirect grading activities, in consultation with the Pechanga Tribe and their designated monitors, to evaluate the significance of any archaeological resources discovered on the property.

60. CR-4 Tribal monitors from the Pechanga Tribe shall be allowed to monitor all grading, excavation and groundbreaking activities, including all archaeological surveys, testing, and studies, to be compensated by the developer.

61. CR-5 The landowner agrees to relinquish ownership of all cultural resources, including all archaeological artifacts that are found on the Project area, to the Pechanga Tribe for proper treatment and disposition.

62. CR-6 All sacred sites are to be avoided and preserved.

63. A qualified paleontologist/archaeologist shall be chosen by the developer for consultation and comment on the proposed grading with respect to potential paleontological/ archaeological impacts. A meeting between the paleontologist/ archaeologist, Planning Department staff, and grading contractor prior to the commencement of grading operations and the excavation shall be arranged. The paleontologist/archaeologist or representative shall have the authority to temporarily divert, redirect or halt grading activity to allow recovery of fossils. The applicant shall provide written verification that services for on-site professional archaeological and paleontological monitoring has been contracted during all phases of earthmoving activities.

64. The Pechanga Band of Luiseño Indians shall be contacted to afford the Band an opportunity to monitor ground-disturbing activities and participate in the decisions regarding collection and curation of any such resources. The applicant shall submit correspondence to the Planning Department that confirms that such contact has been made prior to the issuance of a grading permit.

65. The Applicant shall enter into a pre-construction agreement/treatment plan with the Pechanga Band of Luiseño Indians, prior to the issuance of grading permits, that sets forth and contains the terms and conditions for the treatment of discoveries of Native American cultural resources. The agreement/treatment plan shall contain provisions for the treatment

of all Native American cultural items, artifacts, and human remains that may be uncovered during the project. The agreement/treatment plan may allow for the presence of Pechanga tribal monitors during any ground-disturbing activities. The applicant shall submit a signed copy of the pre-construction agreement/treatment plan to the Planning Department prior to the issuance of a grading permit.

66. The Applicant and/or landowner agrees to relinquish all cultural resources, including all archeological artifacts, that are found on the Project area to the Pechanga Band of Luiseño Indians for proper treatment and disposition. This mitigation measure shall be placed on the grading plan as a note prior to issuance of a grading permit.

67. Prior to any ground disturbance activities a qualified archaeological monitor will be present and will have the authority to stop and redirect grading activities, in consultation with the Pechanga Band of Luiseño Indians and their designated monitors, to evaluate the significance of any archaeological resources discovered on the property. This mitigation measure shall be placed on the grading plan as a note prior to issuance of a grading permit.

68. If any human remains are encountered on the project site, all ground disturbing activities in the vicinity of the discovery will be terminated immediately and the County Coroner's office and the Pechanga Band of Luiseño Indians will be contacted to arrange for the treatment of such remains. This mitigation measure shall be placed on the grading plan as a note prior to issuance of a grading permit.

69. The applicant must enter into a written pre-excavation agreement with the Pechanga Band of Luiseño Indians that addresses the treatment and disposition of all cultural resources, human resources and human remains discovered on-site. A copy of the signed document shall be submitted to the Planning Department.

70. The grading plan shall be revised to include the following:

    a. Earth berms as required along the northern property lines and along Highway 79 South as discussed in these Conditions of Approval.

    b. A note on the plans indicating all areas not proposed for development within 100 days shall be tufted, seeded and irrigated for soil and dust erosion.

    c. Show the five-foot landscape dimension for all parking islands, including the 1-foot concrete landing strip (seven feet total width). One parking island is required per ten parking spaces.

Public Works Department

71. A copy of the grading, improvement plans, along with supporting hydrologic and hydraulic calculations shall be submitted to the Riverside County Flood Control and Water Conservation District for approval prior to the issuance of any permit. A permit from Riverside County Flood Control and Water Conservation District is required for work within their right-of-way.

72. A Grading Plan shall be prepared by a registered Civil Engineer and shall be reviewed and approved by the Department of Public Works. The grading plan shall include all necessary erosion control measures needed to adequately protect adjacent public and private property.

73. The Developer shall post security and enter into an agreement guaranteeing the grading and erosion control improvements in conformance with applicable City Standards and subject to approval by the Department of Public Works.

74. A Soil Report shall be prepared by a registered Soil or Civil Engineer and submitted to the Director of the Department of Public Works with the initial grading plan check. The report shall address all soils conditions of the site, and provide recommendations for the construction of engineered structures and pavement sections.

75. A Geological Report shall be prepared by a qualified engineer or geologist and submitted to the Department of Public Works with the initial grading plan check. The report shall address special study zones and the geological conditions of the site, and shall provide recommendations to mitigate the impact of liquefaction.

76. The Developer shall have a Drainage Study prepared by a registered Civil Engineer in accordance with City Standards identifying storm water runoff expected from this site and upstream of this site. The study shall identify all existing or proposed public or private drainage facilities intended to discharge this runoff. The study shall also analyze and identify impacts to downstream properties and provide specific recommendations to protect the properties and mitigate any impacts. Any upgrading or upsizing of downstream facilities, including acquisition of drainage or access easements necessary to make required improvements, shall be provided by the Developer.

77. NPDES - The project proponent shall implement construction-phase and post-construction pollution prevention measures consistent with the State Water Resources Control Board (SWRCB) and City of Temecula (City) NPDES programs. Construction-phase measures shall include Best Management Practices (BMPs) consistent with the City's Grading, Erosion & Sediment Control Ordinance, the City's standard notes for Erosion and Sediment Control, and the SWRCB General Permit for Construction Activities. Post-construction measures shall be required of all Priority Development Projects as listed in the City's NPDES permit. Priority Development Projects will include a combination of structural and non-structural onsite source and treatment control BMPs to prevent contaminants from commingling with stormwater and treat all unfiltered runoff year-round prior to entering a storm drain. Construction-phase and post-construction BMPs shall be designed and included into plans for submittal to, and subject to the approval of, the City Engineer prior to issuance of a Grading Permit. The project proponent shall also provide proof of a mechanism to ensure ongoing long-term maintenance of all structural post-construction BMPs.

78. As deemed necessary by the Director of the Department of Public Works, the Developer shall receive written clearance from the following agencies:

    a. San Diego Regional Water Quality Control Board

    b. Riverside County Flood Control and Water Conservation District

    c. Planning Department

    d. Department of Public Works

79. The Developer shall comply with all constraints which may be shown upon an Environmental Constraint Sheet (ECS) recorded with any underlying maps related to the subject property.

80. Permanent landscape and irrigation plans shall be submitted to the Planning Department and the Department of Public Works for review and approval.

81. The Developer shall obtain any necessary letters of approval or slope easements for off-site work performed on adjacent properties as directed by the Department of Public Works.

82. A flood mitigation charge shall be paid. The Area Drainage Plan fee is payable to the Riverside County Flood Control and Water Conservation District by either cashier's check or money order, prior to issuance of permits, based on the prevailing area drainage plan fee. If the full Area Drainage Plan fee or mitigation charge has already been credited to this property, no new charge needs to be paid.

83. The site is in an area identified on the Flood Insurance Rate Map as Flood Zone X. This project shall comply with Chapter 15, Section 15.12 of the City Municipal Code which may include obtaining a Letter of Map Revision from FEMA. A Flood Plain Development Permit shall be submitted to the Department of Public Works for review and approval.

Fire Prevention

84. Maximum cul-de-sac length shall not exceed 1320 feet. Minimum turning radius on any cul-de-sac shall be thirty-seven (37) feet for residential and forty-five (45) feet for commercial (CFC 902.2.2.3, CFC 902.2.2.4).

85. Cul-de-sacs and/or intersections with planters must maintain 24-foot clear unobstructed travel width around the planters, not including parking. Hardscape areas are permissible provided that they meet the 80,000 lb. load requirements and are at road level.

86. Private entry driveways with divider medians must be a minimum of 16 feet wide on each side unless the median is held back 30 feet from face of curb of perpendicular road.

87. Fire Department vehicle access roads shall have an unobstructed width of not less than twenty-four (24) feet and an unobstructed vertical clearance of not less than thirteen (13) feet six (6) inches (CFC 902.2.2.1).

88. Prior to building construction, dead end roadways and streets in excess of one hundred and fifty (150) feet which have not been completed shall have a turnaround capable of accommodating fire apparatus (CFC 902.2.2.4).

PRIOR TO ISSUANCE OF BUILDING PERMIT

Planning Department

89. The applicant shall submit to the Planning Department for permanent filing two 8" X 10" glossy photographic color prints of the approved Color and Materials Board and the colored architectural elevations. All labels on the Color and Materials Board and Elevations shall be readable on the photographic prints.

90. The applicant shall submit a photometric plan, including the parking lot to the Planning Department, which meets the requirements of the Development Code and the Palomar Lighting Ordinance. The parking lot light standards shall be placed in such a way as to not adversely impact the growth potential of the parking lot trees.

91. The final construction plans shall include a photometrics plan showing foot-candle illumination in the parking lot, driveways, drive aisles, pedestrian paths of travel and building entrances. A minimum of one-foot candle illumination shall be maintained throughout the site and a minimum of two foot-candle illumination shall be provided at primary building entrances.

92. Final Construction plans shall provide decorative lighting fixtures shall be provided at the primary entry of each building/structure, subject to the approval of the Director of Planning. Final construction plans shall provide details of all light fixtures, including decorative entry lighting, parking lot lighting and wall mounted lighting.

93. The applicant shall submit a detailed lighting plan for the helipad facility.

94. Three copies of Construction Landscaping and Irrigation Plans shall be reviewed and approved by the Planning Department. These plans shall conform to the approved conceptual landscape plan, or as amended by these conditions. The location, number, genus, species, and container size of the plants shall be shown. The plans shall be consistent with the Water Efficient Ordinance. The plans shall be accompanied by the following items:

a. Appropriate filing fee (per the City of Temecula Fee Schedule at time of submittal).

b. Provide a minimum five foot wide planter to be installed at the perimeter of all parking areas. Curbs, walkways, etc. are not to infringe on this area.

c. A note on the plans stating that "Two landscape inspections are required: one inspection is required for irrigation lines and a separate inspection is required for final planting inspection."

d. A note on the plans stating that "The contractor shall provide two copies of an agronomic soils report at the first irrigation inspection."

e. One copy of the approved grading plan.

f. Water usage calculations per Chapter 17.32 of the Development Code (Water Efficient Ordinance).

g. Total cost estimate of plantings and irrigation (in accordance with approved plan).

h. The locations of all existing trees that will be saved consistent with the Tentative Map.

i. A landscape maintenance program shall be submitted for approval, which details the proper maintenance of all proposed plant materials to assure proper growth and landscape development for the long-term esthetics of the property. The approved maintenance program shall be provided to the landscape maintenance contractor who shall be responsible to carry out the detailed program.

j. Specifications shall indicate that a minimum of two landscape site inspections will be required. One inspection to verify that the irrigation mainline is capable of being pressurized to 150 psi for a minimum period of two hours without loss of pressure. The second inspection will verify that all irrigation systems have head-to-head coverage, and to verify that all plantings have been installed consistent with the approved construction landscape plans. The applicant/owner shall contact the Planning Department to schedule inspections.

95. The final construction landscape plan shall include the following:

a. A calculation indicating the percentage of the site that is to be landscaped shall be provided on the construction landscape plans. The applicant shall insure that minimum required code percentages for landscaping are provided to meet the specific zone requirements.

b. The applicant shall field verify adjacent existing street plantings and coordinate proposed plantings to be compatible as approved by the Director of Planning.

c. An appropriate method for screening the gas meters and other externally mounted utility equipment shall be reviewed and approved by the Planning Department.

d. Street trees shall be provided along all streets at the rate of one per every 30 feet of street frontage.

e. Areas proposed for development in another phase occurring not within six months of the completion of the previous phase shall be temporarily tufted, seeded and irrigated for dust and soil erosion control. A note on the grading plan and landscape plan shall be provided.

f. A minimum five foot width planting area shall be provided at the ends of all parking rows. Curbs and concrete walks shall not infringe on this five foot width. The planter length shall be equal to the adjoining parking space. The planter shall contain a minimum of one tree, shrubs and ground covers.

g. Accent trees (minimum 36-inch box size) shall be installed at entries to parking areas in order to define the entry and provide a focal point.

h. Indian Tribe, Faurei varieties shall be provided for Crape Myrtle.

i. Additional trees shall be added on the north, east and west sides of building MOB #2 as approved by the Director of Planning.

j. A combination of large (no less than 24-inch box) Afghan Pines and California Pepper trees (or other large screen trees) shall be provided along the northern perimeter of the project to screen off-site views of the development as approved by the Director of Planning.

k. A landscaped berm shall be provided along the northern property lines adjacent to the residentially zoned lots and DePortola, with mature (24-inchand 36-inch box) screen trees to screen the view of the buildings and reduce the amount of glare from the project site, subject to approval by the Director of Planning. A cross section shall be provided on grading and landscape plans verifying the buffer area.

l. The landscaped area along Highway 79 South shall include a meandering berm with large shrubs to provide additional screening of the parking lot. The applicant shall provide a combination of shrub plantings and earth berms that can be maintained at a minimum height of three feet around all parking areas to screen parking from off-site views.

m. All areas not designed for buildings, parking, driveways or other useable features shall be landscaped, unless approved by the Director of Planning. The area along the eastern property line, adjacent to the access driveway shall be landscaped, unless it is determined critical habitat not to be disturbed.

96. All utilities shall be screened from public view. Landscape construction drawings shall show and label all utilities and provide appropriate screening. Provide a three foot clear zone around fire check detectors as required by the Fire Department before starting the screen. Group utilities together in order to reduce intrusion. Screening of utilities is not to look like an after-thought. Plan planting beds and design around utilities. Locate all light poles on plans and insure that there are no conflicts with trees.

97. Building Construction Plans shall include detailed outdoor areas (including but not limited to trellises, decorative furniture, fountains, and hardscape) to match the style of the building subject to the approval of the Planning Director.

98. Building plans shall indicate that all roof hatches shall be painted "International Orange."

99. The construction plans shall indicate the application of painted rooftop addressing plotted on a nine-inch grid pattern with 45-inch tall numerals spaced nine inches apart. The numerals shall be painted with a standard nine-inch paint roller using fluorescent yellow paint applied over a contrasting background. The address shall be oriented to the street and placed as closely as possible to the edge of the building closest to the street.

100. All roof mounted equipment shall be screened from public view as determined acceptable by the Director of Planning.

101. All exterior wall mounted ladders (for all buildings) shall be located in a manner that they are not visible from Highway 79 South.

Public Works Department

102. Prior to the first building permit, Parcel Map No. 32468 shall be recorded, unless otherwise approved by the Director of Public Works.

103. Improvement plans and/or precise grading plans shall conform to applicable City of Temecula Standards subject to approval by the Director of the Department of Public Works. The following design criteria shall be observed:

a. Flowline grades shall be 0.5% minimum over P.C.C. and 1.00% minimum over A.C. paving.

b. Driveways shall conform to the applicable City of Temecula Standard No. 207A.

c. Street lights shall be installed along the public streets adjoining the site in accordance with City Standard No. 800, 801, 802 and 803.

d. Concrete sidewalks and ramps shall be constructed along public street frontages in accordance with City of Temecula Standard Numbers. 400. 401and 402.

e. All street and driveway centerline intersections shall be at 90 degrees.

f. Landscaping shall be limited in the corner cut-off area of all intersections and adjacent to driveways to provide for minimum sight distance and visibility.

104. The Developer shall design the following public improvements to City of Temecula General Plan standards unless otherwise noted. Plans shall be reviewed and approved by the Director of the Department of Public Works:

a. Improve Highway 79 South (Urban Arterial Highway Standards - 134' R/W) to include installation of sidewalk, street lights, underground utilities, drainage facilities, signing and striping, utilities (including but not limited to water and sewer).

b. Improve De Portola Road (Modified Secondary Arterial (4 lane separated) – 88' R/W) to include installation of pavement, street lights, drainage facilities, signing and striping, and utilities (including but not limited to water and sewer).

c. State Route 79/Redhawk Parkway (Margarita Road) - Provide southbound and eastbound right turn traffic signal overlap.

d. The traffic signal at the intersection of Highway 79 South and Country Glen Way shall be modified to allow a full movement intersection.

105. Private roads shall be designed to meet City public road standards. Unless otherwise approved the following minimum criteria shall be observed in the design of private streets:

a. Dona Lynora (66' R/W) to include the installation of street improvements, paving, curb and gutter, utilities (including but not limited to water and sewer).

b. Private 28-foot wide ingress/egress road to include installation of paving and curb per the approved site plan.

106. The Developer shall construct the following public improvements in conformance with applicable City Standards and subject to approval by the Director of the Department of Public Works:

a. Street improvements, which may include, but not limited to: pavement, curb and gutter, sidewalks, drive approaches, street lights, signing, striping, traffic signal systems, and other traffic control devices as appropriate

b. Storm drain facilities

c. Sewer and domestic water systems

d. Under grounding of proposed utility distribution lines

107. A construction area Traffic Control Plan shall be designed by a registered Civil or Traffic Engineer and reviewed by the Director of the Department of Public Works for any street closure and detour or other disruption to traffic circulation as required by the Department of Public Works. The Traffic Control Plan shall indicate that construction traffic may not use the entrance from DePortola Road to access the site.

108. All access rights, easements for sidewalks for public uses shall be submitted and reviewed by the Director of the Department of Public Works and City Attorney and approved by City Council for dedication to the City where sidewalks meander through private property.

109. The building pad shall be certified to have been substantially constructed in accordance with the approved Precise Grading Plan by a registered Civil Engineer, and the Soil Engineer shall issue a Final Soil Report addressing compaction and site conditions.

110. The Developer shall pay to the City the Public Facilities Development Impact Fee as required by, and in accordance with, Chapter 15.06 of the Temecula Municipal Code and all Resolutions implementing Chapter 15.06.

111. The Developer shall pay to the City the Western Riverside County Transportation Uniform Mitigation Fee (TUMF) Program as required by, and in accordance with, Chapter 15.08 of the Temecula Municipal Code and all Resolutions implementing Chapter 15.08.

In addition to the above Public Works Department Conditions of Approval, THE FOLLOWING CONDITIONS OF APPROVAL SHALL BE COMPLETED PRIOR TO THE ISSUANCE OF THE FIRST BUILDING PERMIT IN PHASE I – (A 170-bed hospital with 80,000 square feet of medical office space)

112. Parcel Map No. 32468 shall be recorded, unless otherwise approved by the Director of Public Works.

113. The Developer shall design the following public improvements to City of Temecula General Plan standards unless otherwise noted. Plans shall be reviewed and approved by the Director of the Department of Public Works:

a. Highway 79 South (Urban Arterial Highway Standards - 134' R/W) to include installation of sidewalk, street lights, underground utilities, drainage facilities, signing and striping, utilities (including but not limited to water and sewer).

i. Westbound

a) Provide a dedicated right turn lane - 12 foot wide by 200 feet long

b) Provide three thru lanes

c) Provide one left turn lane

ii. Eastbound

a) Provide two left turn lanes

b) Provide two thru lanes and

c) Provide one shared thru/right lane

b. Dona Lynora (66' R/W)

i. Installation of half-street improvements, paving, curb and gutter, utilities (including but not limited to water and sewer)

ii. Restricted to right in/right out vehicular movement

c. Main entry (Country Glen Way) and Highway 79 South

i. Signal modification

ii. Provide a 245' continuous median from Highway 79 South to main drive aisle

iii. Southbound (exiting site)

a) Provide two left turn lanes

b) Provide a 20-foot wide shared thru/right turn lane

iv. Northbound (entering site) – 28 foot wide

d. De Portola Road (Modified Secondary Arterial (4 lane separated) – 88' R/W)

i. Installation of half-street improvements, paving, curb and gutter, utilities (including but not limited to water and sewer)

ii. Provide a 28 foot wide internal ingress/egress connection to De Portola Road

e. State Route 79/Redhawk Parkway (Margarita Road)

i. Provide southbound and eastbound right turn traffic signal overlap.

Building Department

The Conditions of Approval herein (Building Department) are not applicable to the projects that fall under the jurisdiction of the State of California OSHPD. These conditions are applicable to the construction documents for projects, specifically the medical office buildings that are within the jurisdiction of the City of Temecula Building and Safety Department.

114. All design components shall comply with applicable provisions of the 2007 edition of the California Building, Plumbing and Mechanical Codes; 2007 California Electrical Code; California Administrative Code, Title 24 Energy Code 2005 Standards, California Title 24 Disabled Access Regulations, and the Temecula Municipal Code.

115. A complete exterior site lighting plans showing compliance with Ordinance No. 655 for the regulation of light pollution. All street-lights and other outdoor lighting shall be shown on electrical plans submitted to the Department of Building and Safety. Any outside lighting shall be hooded and directed so as not to shine directly upon adjoining property or public rights-of-way.

116. A receipt or clearance letter from the Temecula Valley School District shall be submitted to the Building & Safety Department to ensure the payment or exemption from School Mitigation Fees.

117. Obtain all building plans and permit approvals prior to commencement of any construction work.

118. All building and facilities must comply with applicable disabled access regulations. Provide all details on plans (California Disabled Access Regulations effective April 1, 1998).

119. Provide disabled access from the public way to the main entrance of the building.

120. Provide van accessible parking located as close as possible to the main entry.

121. Restroom fixtures, number and type, to be in accordance with the provisions of the 2007 edition of the California Building Code Appendix 29.

122. Provide appropriate stamp of a registered professional with original signature on plans prior to permit issuance.

123. Provide electrical plan including load calculations and panel schedule, plumbing schematic and mechanical plan for plan review.

124. Truss calculations that are stamped by the engineer of record and the truss manufacturer engineer are required for plan review submittal.

125. Provide precise grading plan at plan check submittal to check accessibility for persons with disabilities.

126. A pre-construction meeting is required with the building inspector prior to the start of the building construction.

Community Services Department

127. The developer shall provide TCSD verification of arrangements made with the City's franchise solid waste hauler for disposal of construction debris.

128. Prior to the first building permit or installation of additional street lighting which ever occurs first, the developer shall complete the TCSD application process, submit an approved Edison Streetlight Plan and pay the appropriate energy fees related to the transfer of arterial street lighting on Hwy 79 South into the TCSD maintenance program.

Fire Prevention

129. Prior to building permit or building construction, all locations where structures are to be built shall have approved Fire Department vehicle access roads. Fire Department access roads shall be an all weather surface for 80,000 lbs. GVW (CFC 8704.2 and 902.2.2.2).

130. Prior to issuance of building permits, the developer shall furnish one copy of the water system plans to the Fire Prevention Bureau for approval prior to installation for all private water systems pertaining to the fire service loop. Plans shall be signed by a registered civil engineer; contain a Fire Prevention Bureau approval signature block; and conform to hydrant type, location, spacing and minimum fire flow standards. Hydraulic calculations will be required with the underground submittal to ensure fire flow requirements are being met for the on site hydrants. The plans must be submitted and approved prior to building permit being issued (CFC 8704.3, 901.2.2.2 and National Fire Protection Association 24 1-4.1).

131. Prior to issuance of building permits, plans for structural protection from vegetation fires shall be submitted to the Fire Prevention Bureau for review and approval. The measures shall include, but are not limited to, enclosing eaves, noncombustible barriers (cement or block walls), and fuel modification zones (CFC Appendix II-A).

PRIOR TO RELEASE OF POWER, BUILDING OCCUPANCY OR ANY USE ALLOWED BY THIS PERMIT

Planning Department

132. A report of findings, including an itemized inventory of recovered specimens, should be prepared upon completion of the steps outlined the initial study, under cultural resources. The report should include a discussion of the significance of all recovered specimens. The report and inventory, when submitted to the Lead Agency (City of Temecula), would signify completion of the program to mitigate impacts to the palentologic and archaeological resources.

133. The applicant shall be required to screen all loading areas and roof mounted mechanical equipment from view of the adjacent residences and public right-of-ways. If upon final inspection it is determined that any mechanical equipment, roof equipment or backs of building parapet walls are visible from any portion of the public right-of-way adjacent to the project site, the developer shall provide screening by constructing a sloping tile covered mansard roof element or other screening if reviewed and approved by the Director of Planning.

134. All required landscape planting and irrigation shall have been installed consistent with the approved construction plans and shall be in a condition acceptable to the Director of Planning. The plants shall be healthy and free of weeds, disease, or pests. The irrigation system shall be properly constructed and in good working order.

135. Performance securities, in amounts to be determined by the Director of Planning, to guarantee the maintenance of the plantings in accordance with the approved construction landscape and irrigation plan shall be filed with the Planning Department for a period of one year from final certificate of occupancy. After that year, if the landscaping and irrigation system have been maintained in a condition satisfactory to the Director of Planning, the bond shall be released upon request by the applicant.

136. Each parking space reserved for the handicapped shall be identified by a permanently affixed reflectorized sign constructed of porcelain on steel, beaded text or equal, displaying the International Symbol of Accessibility. The sign shall not be smaller than 70 square inches in area and shall be centered at the interior end of the parking space at a minimum height of 80 inches from the bottom of the sign to the parking space finished grade, or centered at a minimum height of 36 inches from the parking space finished grade, ground, or sidewalk. A sign shall also be posted in a conspicuous place, at each entrance to the off-street parking facility, not less than 17 inches by 22 inches, clearly and conspicuously stating the following:

> "Unauthorized vehicles parked in designated accessible spaces not displaying distinguishing placards or license plates issued for persons with disabilities may be towed away at owner's expense. Towed vehicles may be reclaimed by telephoning (951) 696-3000."

137. In addition to the above requirements, the surface of each parking place shall have a surface identification sign duplicating the Symbol of Accessibility in blue paint of at least three square feet in size.

138. All site improvements including but not limited to parking areas and striping shall be installed prior to occupancy or any use allowed by this permit.

139. All of the foregoing conditions shall be complied with prior to occupancy or any use allowed by this permit.

Public Works Department

PHASE I - A 170-bed hospital with 80,000 square foot medical office space.

140. Prior to the first Certificate of Occupancy in Phase I, the following improvements shall be constructed and operational:

a. Highway 79 South

i. Traffic signal modifications at the intersection of Highway 79 South and Country Glen Way

ii. Roadway improvements

a) Westbound

(i) Provide a dedicated right turn lane - 12 foot wide by 200 feet long

(ii) Provide three thru lanes

(iii) Provide one left turn lane

b) Eastbound

(i) Provide two left turn lanes

(ii) Provide two thru lanes and

(iii) Provide one shared thru/right lane

b. Main Entry/Country Glen Way

i. Provide a 245' continuous median from Highway 79 South to main drive aisle

ii. Southbound (exiting site)

a) Provide two left turn lanes

b) Provide a 20-foot wide shared thru/right turn lane

iii. Northbound (entering site) – 28 foot wide

c. De Portola Road (Modified Secondary Arterial (4 lane separated) – 88' R/W)

i. 28-foot wide internal ingress/egress connection from project site to De Portola Road

ii. Roadway improvements

d. State Route 79/Redhawk Parkway (Margarita Road)

i. Southbound and eastbound right turn traffic signal overlap

e. Dona Lynora (66' R/W)

i. Installation of half-street improvements, paving, curb and gutter, utilities (including but not limited to water and sewer)

ii. Restricted to right in/right out vehicular movement

PHASE II - Expand to a 320-bed hospital plus an additional 60,000 square foot medical office space.

141. As deemed necessary by the Department of Public Works, the Developer shall receive written clearance from the following agencies:

a. Rancho California Water District

b. Eastern Municipal Water District

c. Department of Public Works

142. All public improvements, including traffic signal modification, shall be constructed and completed per the approved plans and City standards to the satisfaction of the Director of the Department of Public Works.

143. The existing improvements shall be reviewed. Any appurtenance damaged or broken shall be repaired or removed and replaced to the satisfaction of the Director of the Department of Public Works.

Building Department

144. Developments with multi-tenant buildings or Shell Buildings shall provide a house electrical meter to provide power for the operation of exterior lighting, irrigation pedestals and fire alarm systems for each building on the site. Developments with Single User Buildings shall clearly show on the plans the location of a dedicated panel in place for the purpose of the operation of exterior lighting and fire alarm systems when a house meter is not specifically proposed.

Fire Prevention

145. Prior to Occupancy and building final, all locations where structures are to be built shall have approved Fire Department vehicle access roads to within 150 feet to any portion of the facility or any portion of an exterior wall of the building(s). Fire Department access roads shall be an all weather surface designed for 80,000 lbs. GVW with a minimum AC thickness of .25 feet (CFC sec 902).

146. Prior to issuance of a Certificate of Occupancy or building final, "Blue Reflective Markers" shall be installed to identify fire hydrant locations (CFC 901.4.3).

147. Prior to issuance of Occupancy all manual and electronic gates on required Fire Department access roads or gates obstructing Fire Department building access shall be provided with the Knox Rapid entry system for emergency access by firefighting personnel (CFC 902.4).

148. Prior to map recordation the applicant shall submit to the Fire Prevention Bureau a georectified (pursuant to Riverside County standards) digital version of the map including parcel and street centerline information. The electronic file will be provided in a ESRI ArcInfo/ArcView *compatible* format and projected in a State Plane NAD 83 (California Zone VI) coordinate system. The Bureau must accept the data as to completeness, accuracy and format prior to satisfaction of this condition.

Police Department

149. Roof Hatches: All roof hatches shall be painted "International Orange."

150. Marked Parking for Disabled Vehicles: All disabled parking stalls on the premises shall be marked in accordance with section 22511.8 of the California Vehicle Code.

OUTSIDE AGENCIES

151. Flood protection shall be provided in accordance with the Riverside County Flood Control District's transmittal dated July 24, 2004, a copy of which is attached. The fee is made payable to the Riverside County Flood Control Water District by either a cashier's check or money order, prior to the issuance of a grading permit (unless deferred to a later date by the District), based upon the prevailing area drainage plan fee.

152. The applicant shall comply with the recommendations set forth in the County of Riverside Department of Environmental Health's transmittal dated July 7, 2007, a copy of which is attached.

153. The applicant shall comply with the recommendations set forth in the Riverside Transit Authority's transmittal dated July 21, 2004, a copy of which is attached.

154. The applicant shall comply with the recommendations set forth in the Rancho California Water District's transmittal dated July 12, 2004, a copy of which is attached.

WARREN D. WILLIAMS
General Manager-Chief Engineer

1995 MARKET STREET
RIVERSIDE, CA 92501
909.955.1200
909.788.9965 FAX

51180.1

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

RECEIVED
JUL 28 2004
By

City of Temecula
Planning Department
Post Office Box 9033
Temecula, California 92589-9033

Attention: DAN LONG

Ladies and Gentlemen: Re: PA 04-0462 & PA 04-0463

The District does not normally recommend conditions for land divisions or other land use cases in incorporated cities. The District also does not plan check city land use cases, or provide State Division of Real Estate letters or other flood hazard reports for such cases. District comments/recommendations for such cases are normally limited to items of specific interest to the District including District Master Drainage Plan facilities, other regional flood control and drainage facilities which could be considered a logical component or extension of a master plan system, and District Area Drainage Plan fees (development mitigation fees). In addition, information of a general nature is provided.

The District has not reviewed the proposed project in detail and the following checked comments do not in any way constitute or imply District approval or endorsement of the proposed project with respect to flood hazard, public health and safety or any other such issue:

___ This project would not be impacted by District Master Drainage Plan facilities nor are other facilities of regional interest proposed.

X This project involves District Master Plan facilities. The District will accept ownership of such facilities on written request of the City. Facilities must be constructed to District standards, and District plan check and inspection will be required for District acceptance. Plan check, inspection and administrative fees will be required.

___ This project proposes channels, storm drains 36 inches or larger in diameter, or other facilities that could be considered regional in nature and/or a logical extension of the adopted _____ Master Drainage Plan. The District would consider accepting ownership of such facilities on written request of the City. Facilities must be constructed to District standards, and District plan check and inspection will be required for District acceptance. Plan check, inspection and administrative fees will be required.

___ This project is located within the limits of the District's _____ Area Drainage Plan for which drainage fees have been adopted; applicable fees should be paid by cashier's check or money order only to the Flood Control District prior to issuance of building or grading permits, whichever comes first. Fees to be paid should be at the rate in effect at the time of issuance of the actual permit.

GENERAL INFORMATION

This project may require a National Pollutant Discharge Elimination System (NPDES) permit from the State Water Resources Control Board. Clearance for grading, recordation, or other final approval should not be given until the City has determined that the project has been granted a permit or is shown to be exempt.

If this project involves a Federal Emergency Management Agency (FEMA) mapped flood plain, then the City should require the applicant to provide all studies, calculations, plans and other information required to meet FEMA requirements, and should further require that the applicant obtain a Conditional Letter of Map Revision (CLOMR) prior to grading, recordation or other final approval of the project, and a Letter of Map Revision (LOMR) prior to occupancy.

If a natural watercourse or mapped flood plain is impacted by this project, the City should require the applicant to obtain a Section 1601/1603 Agreement from the California Department of Fish and Game and a Clean Water Act Section 404 Permit from the U.S. Army Corps of Engineers, or written correspondence from these agencies indicating the project is exempt from these requirements. A Clean Water Act Section 401 Water Quality Certification may be required from the local California Regional Water Quality Control Board prior to issuance of the Corps 404 permit.

X AN ENCROACHMENT PERMIT SHALL BE OBTAINED FOR ANY WORK WITHIN THE DISTRICT RIGHT-OF-WAY OR WITH DISTRICT FACILITIES, TEMECULA CREEK LINE ✓

Very truly yours,

Arturo Diaz

ARTURO DIAZ
Senior Civil Engineer

Date: July 24, 2004

c:AM

COUNTY OF RIVERSIDE • COMMUNITY HEALTH AGENCY

DEPARTMENT OF ENVIRONMENTAL HEALTH

July 7, 2004

RECEIVED
JUL 9 2004
By

City of Temecula Planning Department
P.O. Box 9033
Temecula, CA 92589-9033
Attention: Dan Long

RE: Plot Plan No. PA04-0462 & PA04-0463

Dear Mr. Long:

Department of Environmental Health has reviewed the Plot Plan No. PA04-0462 & PA04-0463 to construct Temecula Regional Hospital and has no objections. Water and sewer services should be available in this area, although we have not in receipt of any information concerning those services.

PRIOR TO THE ISSUANCE OF BUILDING PERMITS THE FOLLOWING SHOULD BE REQUIRED:

a) "Will-serve" letters from the appropriate water and sewering districts.

b) Any food establishments, (including vending machines), shall require three complete sets of plans for each food establishment will be submitted including a fixture schedule, a finish schedule and a plumbing schedule in order to ensure compliance with the California Uniform Retail Food Facilities Law 2. For specific reference, contact Food Facility Plan Examiners at (909) 600-6330.

c) Any hazardous materials handling or storage shall require a clearance letter from the Department of Environmental Health Hazardous Materials Management Branch (955-5055)

Sincerely,

Sam Martinez, Supervising Environmental Health Specialist
(909) 955-8980
NOTE: Any current additional requirements not covered can be applicable at time of Building Plan review for final Department of Environmental Health clearance.
cc: Doug Thompson, Hazardous Materials

Riverside Transit Agency
1825 Third Street
P.O. Box 59968
Riverside, CA 92517-1968
Phone: (909) 565-5000
Fax: (909) 565-5001

July 21, 2004

Mr. Dan Long, Case Planner
Planning Dept., City of Temecula
P.O. Box 9033
Temecula, CA 92589-9033

SUBJECT: P04-0462 and PA04-0463 – Temecula Hospital – Comments from RTA

Dear Mr: Long:

Thank you for the opportunity to review the site plan for the proposed 535,000 sq ft medical complex at Temecula Hospital along State Route (SR) 79. A copy of RTA Planning's internal Development Review Memo is enclosed and provides additional rationale and technical detail in support of the requests for transit amenities that would expand mobility options for this project.

To encourage and enhance future transit options at Temecula Hospital, RTA recommends the site plan or street improvement plans be revised at to show the following features:

- A paved, lighted, and ADA-compliant transit bus stop with a 220 ft-long turnout configuration capable of accommodating two parked buses, to be installed along the N side of SR 79, just west of the primary hospital entrance. The bus stop should incorporate a paved passenger waiting area and space for installation of benches and passenger shelters.

- Information note: Sufficient right-of-way appears available for this turnout without significant adjustment to sidewalks, loss of parking spaces or required landscaping and with minimum disturbance of future street tree or utility structure installations.

- RTA staff is also recommending designation on the plans of an additional specified clear path of travel from the bus stop to the entrance of the main hospital building.

- RTA staff also advises that the project proponents work with the City to install two new passenger shelters at the new bus stop that are complimentary to the hospital's design and architectural themes.

RTA requests these recommendations be made conditions of approval for PA 04-0462 and PA04-0463. If you need further clarification or I can be of further assistance, please call me at (909) 565-5164 or contact me online at mmccoy@riversidetransit.com.

Sincerely,

Michael McCoy
Senior Planner

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RTA
Riverside Transit Agency

July 21, 2004

PLANNING DEPARTMENT MEMO

DEVELOPMENT REVIEW

To: Anne Palatino, Director of Planning

From: Michael McCoy, Senior Planner *Mike*

Subject: City of Temecula, **Cases PA04-0462 & -0463: Plot Plan review and CUP** for 535,000 sq ft of hospital and medical-related facilities, N of State Route (SR) 79 and W of Margarita Rd; **Riverside Transit Agency (RTA) Comments**
Bus routes involved: Existing Route 24 and future bus routes

Summary: Universal Health Care Services Inc proposes a site plan and conditional use permit for the Temecula Hospital project, 535,000 sq ft of medical facilities located on 35 now vacant acres ¼ mile west of the SR79-Margarita Rd intersection in a rapidly expanding commercial district of Temecula. This will be the first full-facility medical institution in Southwest Riverside County and will be a distinct asset to the community, challenging planners and engineers to provide a robust suite of mobility options for access to it. The project includes the following components:

- **176-bed, 6-story hospital building, including Emergency admittance**
- **A 5-story expansion of the hospital**
- **Two multi-story medical office buildings**
- **Cancer center**
- **Fitness center**
- **1280 parking spaces**

The site plan's perimeter and interior circulation patterns are very good, with primary access provided directly off a signalized intersection at SR 79 and Country Glen Wy. The hospital's main building entrance will have a covered drive-thru loop suitable for van-pools, paratransit and most private vehicles. Several ADA paths-of-travel are specified on the site plan for connection between the main hospital and all perimeter driveways.

RTA operates Route 24 along some portions of SR79 but the bus currently does not stop at this site. RTA is currently studying a general reconfiguration of bus routes in South-west Riverside County and anticipates additional bus service along SR79 and Margarita Rd in the relatively near future since it is an important arterial that would serve many commercial generators of bus traffic.

In considering what transit amenities would be appropriate for the Temecula Hospital site, RTA staff looked at other comparable hospitals in the Inland Counties. In some cases, such as Route 17, the hospital is important enough to be the route terminus or name of the line as identified on the bus itself. Also, several distinct transit routes often serve a single large hospital, as listed on the next page.

It was found that in general, buses would come onto the site, close to the main building, to drop off and pick up passengers if the facility was publicly owned, such as Riverside

County General Medical Center in Moreno Valley. For privately owned hospitals, like Kaiser or San Gorgonio, the transit stop was always off the property along a nearby street. Some examples of transit service and stops are:

- *Kaiser Hospital in Riverside:* 2 lines, with transit stops along Magnolia having multiple turnouts, benches and shelters, etc;
- *Loma Linda Hospital:* 3 lines, with transit stops at several locations on perimeter of complex and other nearby medical facilities such as the Veterans Hospital;
- *Riverside General:* 3 lines, with transit center and bus turn-around on site, very close and convenient to main building;
- *Riverside Community:* 2 lines, bus stops along Magnolia, off the property;
- *Corona Regional Med Ctr:* 2 lines, bus stops along S Main St, off the property;
- *St. Bernardine Med Ctr:* 3 lines, multiple bus stops along various perimeter sts

Smaller hospitals such as Menifee Valley Med Ctr or the Inland Valley Regional Medical Ctr are not expected to be comparable to the planned Temecula facility upon its full build-out. RTA staff believes Riverside's Kaiser Hospital bus stop configuration would be most comparable with the future needs of the proposed Temecula facility, since the former also has several medical towers, doctor offices and a similar perimeter access road network. No on-site access for regular transit buses is anticipated at either site.

To ensure safety and convenience of future transit operations at the Temecula Hospital, RTA is respectfully requesting the site plan or associated street engineering plans be amended to include a two or three-bay bus stop and bus turnout located at:

- North side of State Highway 79, on the far side (west of) the proposed signalized intersection with Country Glen Wy and the primary hospital entrance. The stop's taper, or entrance area, should begin no closer than 50 feet from the end of the intersection's radius and extend for no less than 220 ft to accommodate two parked buses. The exact position would depend on location of utility structures, commercial signs, street lighting, key landscaping and other factors. The minimum depth (i.e. width) of the turnout is 10 ft, however this may be reduced to 5 ft if a designated, striped bike path is installed along this portion of State Highway 79.

- Additionally, RTA requests the site plan specify another clear path of travel from the main building going directly out to the requested bus stop location.

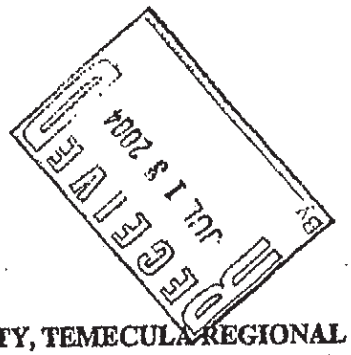
- RTA staff also requests that the project proponents consider investing in some additional architectural amenities for the bus stop, its benches and shelters by perhaps taking this opportunity to make a positive visual statement at this site in the interests of maintaining the community image of Temecula. Because this facility will be one of the most well-known and visited places in the city, its bus stop is deserving of a high-quality bench and shelter that are visually compatible and complimentary to the main building architectural theme. The applicant's architect or engineers are urged to contact RTA staff for further details.

RTA staff will request the multi-bay bus turnout and the path of travel discussed above be made conditions of approval for cases 04-0462 and 04-0463. RTA staff will work with future developers of the eastbound bus stop site (across SR 79) to ensure it is comparable and compatible with the stop in front of the Hospital.

INITIAL REVIEW INFORMATION - Review completed date: July 21, 2004.

Rancho Water

July 12, 2004



Dan Long, Project Planner
City of Temecula
Planning Department
Post Office Box 9033
Temecula, CA 92589 - 9033

SUBJECT: WATER AVAILABILITY, TEMECULA REGIONAL HOSPITAL; PARCELS NO. 1, NO. 2, AND NO. 3 OF PARCEL MAP 13043; PARCEL 4 OF PARCEL MAP 6813; AND PARCELS NO. 1, NO. 2, NO. 3, AND NO. 4 OF PARCEL MAP 13734; APN 959-080-001 THROUGH APN 959-080-004, AND APN 959-080-007 THROUGH APN 959-080-010; PA04-0462 AND PA04-0463

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Ben E. Drake
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Phillip L. Forbes
Director of Finance-Treasurer
R.P. "Bob" Lemons
Director of Engineering
Perry H. Louck
Controller
Linda M. Fregoso
District Secretary/Administrative Services Manager
C. Michael Cowett
Best Best & Krieger LLP
General Counsel

Dear Mr. Long:

Please be advised that the above-referenced property is located within the boundaries of Rancho California Water District (RCWD). Water service, therefore, would be available upon construction of any required on-site and/or off-site water facilities and the completion of financial arrangements between RCWD and the property owner.

If fire protection is required, the customer will need to contact RCWD for fees and requirements. Water availability would be contingent upon the property owner signing an Agency Agreement that assigns water management rights, if any, to RCWD.

All on-site public water facilities will require public utility easements in favor of RCWD. The project proposes to relocate RCWD's 12-inch discharge pipeline and the associated easement from RCWD Well No. 120. This pipeline must be contained within a minimum 20-foot-wide easement, which is located such that no permanent structures or trees are located within its boundaries. The project proponent should schedule a meeting with RCWD to confirm and detail these requirements.

If you have any questions, please contact an Engineering Services Representative at this office.

Sincerely,

RANCHO CALIFORNIA WATER DISTRICT

Michael G. Meyerpeter, PE
Development Engineering Manager
04\MM:mc018.FCF

c: Laurie Williams, Engineering Services Supervisor
Bud Jones, Engineering Project Coordinator

EXHIBIT A

FINAL CONDITIONS OF APPROVAL

SCANNED:	3-25-08
G DRIVE:	3-25-08
PERMITS PLUS:	3-25-08
INITIALS:	CM
PLANNER:	Papp

ACCEPTANCE OF CONDITIONS OF APPROVAL

I, Tim Rielly, understand that Planning Application No. PA07-0201 has been approved with Conditions of Approval which are set forth in Exhibit A. I have read the Conditions of Approval contained in CC Resolution No. 08-14 and understand them. Through signing this ACCEPTANCE OF CONDITIONS OF APPROVAL, I agree and commit to the City of Temecula that I will implement and abide by the Conditions of Approval, including any indemnification requirements imposed by those conditions.

SIGNATURE

DATE 3/12/08

EXHIBIT A

CITY OF TEMECULA

FINAL CONDITIONS OF APPROVAL

Planning Application No.:	PA07-0201
Project Description:	A Tentative Parcel Map (TPM 32468) to consolidate eight parcels totaling 35.31 acres into one parcel located on the north side of Highway 79 South, approximately 700 feet west of Margarita Road
Assessor's Parcel Nos.:	959-080-001 through 959-080-004 and 959-080-007 through 959-080-010
MSHCP Category:	Commercial
DIF Category:	Office
TUMF Category:	Service Commercial/Office
Approval Date:	January 22, 2008
Expiration Date:	January 22, 2011

WITHIN 48 HOURS OF THE APPROVAL OF THIS PROJECT

Planning Department

1. The applicant/developer shall deliver to the Planning Department a cashier's check or money order made payable to the County Clerk in the amount of Two Thousand Six Hundred Seventy Dollars and seventy five cents ($2,670.75) which includes the Two Thousand Six Hundred Six Dollar and seventy five cents ($2,606.75) fee, required by Fish and Game Code Section 711.4(d)(3) plus the Sixty-Four Dollar ($64.00) County administrative fee, to enable the City to file the Notice of Determination for the Environmental Impact Report required under Public Resources Code Section 21152 and California Code of Regulations Section 15904. If within said 48- hour period the applicant/developer has not delivered to the Planning Department the check as required above, the approval for the project granted shall be void by reason of failure of condition (Fish and Game Code Section 711.4(c)).

2. The applicant shall sign the Acceptance of Conditions of Approval document that will be provided by the Planning Department staff and return the documents with an original signature to the Planning Department.

GENERAL REQUIREMENTS

Planning Department

3. The tentative subdivision shall comply with the State of California Subdivision Map Act and to all the requirements of Ordinance No. 460, unless modified by the conditions listed below. A time extension may be approved in accordance with the State Map Act and City Ordinance, upon written request, if made 60 days prior to the expiration date.

4. The applicant and owner of the real property subject to this condition shall hereby agree to indemnify, protect, hold harmless, and defend the City with Legal Counsel of the City's own selection from any and all claims, actions, awards, judgments, or proceedings against the City to attack, set aside, annul, or seek monetary damages resulting, directly or indirectly, from any action in furtherance of and the approval of the City, or any agency or instrumentality thereof, advisory agency, appeal board or legislative body including actions approved by the voters of the City, concerning the Planning Application. The City shall be deemed for purposes of this condition, to include any agency or instrumentality thereof, or any of its elected or appointed officials, officers, employees, consultants, contractors, legal counsel, and agents. City shall promptly notify both the applicant and landowner of any claim, action, or proceeding to which this condition is applicable and shall further cooperate fully in the defense of the action. The City reserves the right to take any and all action the City deems to be in the best interest of the City and its citizens in regards to such defense.

5. If subdivision phasing is proposed, a phasing plan shall be submitted to and approved by the Planning Director.

6. The project and all subsequent projects within this site shall comply with all mitigation measures identified within the Supplemental EIR for the Temecula Regional Hospital Project (SCH No. 2005031017).

7. The applicant shall comply with all mitigation measures contained in the approved Mitigation Monitoring Program.

8. Landscaping installed for the Project shall be continuously maintained to the reasonable satisfaction of the Planning Director. If it is determined that the landscaping is not being maintained, the Planning Director shall have the authority to require the property owner to bring the landscaping into conformance with the approved landscape plan. The continued maintenance of all landscaped areas shall be the responsibility of the developer or any successors in interest.

9. All the foregoing conditions shall be complied with prior to occupancy or any use allowed by this permit.

10. The applicant shall dedicate and record an eight-foot wide public access easement for multi-use trail purposes on the Final Parcel Map 32468. Location of the multi-use trail shall be approved by the Director of Planning.

Public Works Department

11. It is understood that the Developer correctly shows on the tentative map all existing and proposed easements, traveled ways, improvement constraints and drainage courses, and their omission may require the project to be resubmitted for further review and revision.

12. A Grading Permit for either rough or precise grading shall be obtained from the Department of Public Works prior to commencement of any construction outside of the City maintained road right-of-way

13. An Encroachment Permit shall be obtained from the Department of Public Works prior to commencement of any construction within an existing or proposed City right-of-way.

14. All improvement plans and grading plans shall be coordinated for consistency with adjacent projects and existing improvements contiguous to the site and shall be submitted on standard 24" x 36" City of Temecula mylars.

15. All on-site drainage facilities shall be maintained by a private maintenance association or property owner.

16. All utilities, except electrical lines rated 34kv or greater, shall be installed underground.

17. The driveway on De Portola Road will be restricted to right-in/right-out/left-in movements.

Fire Prevention

18. Final fire and life safety conditions will be addressed when building plans are reviewed by the Fire Prevention Bureau. These conditions will be based on occupancy, use, the California Building Code (CBC), California Fire Code (CFC), and related codes which are in force at the time of building plan submittal.

19. The Fire Prevention Bureau is required to set a minimum fire flow for residential land division per CFC Appendix III.A, Table A-III-A-1. The developer shall provide for this project, a water system capable of delivering 4,000 GPM at 20-PSI residual operating pressure with a 4 - hour duration. The required fire flow may be adjusted during the approval process to reflect changes in design, construction type, or automatic fire protection measures as approved by the Fire Prevention Bureau. The Fire Flow as given above has taken into account all information as provided (CFC 903.2, Appendix III-A).

20. The Fire Prevention Bureau is required to set minimum fire hydrant distances per CFC Appendix III-B, Table A-III-B-1. Super fire hydrants (6" x 4" x 2-2 1/2" outlets) shall be located on Fire Department access roads and adjacent public streets. Hydrants shall be spaced at 350 feet apart, at each intersection and shall be located no more than 210 feet from any point on the street or Fire Department access road(s) frontage to a hydrant. The required fire flow shall be available from any adjacent hydrant(s) in the system (CFC 903.2, 903.4.2, and Appendix III-B).

21. All traffic calming devices that could impede or slow emergency vehicle access are prohibited, except those expressly approved by the Fire Prevention Bureau individually on a case by case basis when they maintain the required travel widths and radii.

22. If construction is phased, each phase shall provide approved access and fire protection prior to any building construction (CFC 8704.2 and 902.2.2). This will include all internal roads, connecting roads between phases, and construction gates. All required access must be in and available prior to and during ALL construction. Phasing is approved on a separate map, and is ultimately subject to final approval in the field.

PRIOR TO ISSUANCE OF GRADING PERMITS

Planning Department

23. The following shall be included in the Notes Section of the Grading Plan: "If at any time during excavation/construction of the site, archaeological/cultural resources, or any artifacts or other objects which reasonably appears to be evidence of cultural or archaeological resource are discovered, the property owner shall immediately advise the City of such and the City shall cause all further excavation or other disturbance of the affected area to immediately cease. The Director of Planning at his/her sole discretion may require the property to deposit a sum of money it deems reasonably necessary to allow the City to consult and/or authorize an independent, fully qualified specialist to inspect the site at no cost to the City, in order to assess the significance of the find. Upon determining that the discovery is not an archaeological/cultural resource, the Director of Planning shall notify the property owner of such determination and shall authorize the resumption of work. Upon determining that the discovery is an archaeological/cultural resource, the Director of Planning shall notify the property owner that no further excavation or development may take place until a mitigation plan or other corrective measures have been approved by the Director of Planning."

24. A copy of the rough grading plans shall be submitted and approved by the Planning Department.

25. CR-1 Prior to the issuance of grading permits, the developer is required to enter into a Cultural Resources Treatment Agreement with the Pechanga Tribe. This Agreement will address the treatment and disposition of cultural resources and human remains that may be impacted as a result of the development of the Project, as well as provisions for tribal monitors.

26. CR-2 If cultural resources are discovered during the project construction (inadvertent discoveries), all work in the area of the find shall cease, and a qualified archaeologist and representatives of the Pechanga Tribe shall be retained by the project sponsor to investigate the find, and make recommendations as to treatment and mitigation.

27. CR-3 A qualified archaeological monitor will be present and will have the authority to stop and redirect grading activities, in consultation with the Pechanga Tribe and their designated monitors, to evaluate the significance of any archaeological resources discovered on the property.

28. CR-4 Tribal monitors from the Pechanga Tribe shall be allowed to monitor all grading, excavation and groundbreaking activities, including all archaeological surveys, testing, and studies, to be compensated by the developer.

29. CR-5 The landowner agrees to relinquish ownership of all cultural resources, including all archaeological artifacts that are found on the Project area, to the Pechanga Tribe for proper treatment and disposition.

30. CR-6 All sacred sites are to be avoided and preserved.

31. A qualified paleontologist/archaeologist shall be chosen by the developer for consultation and comment on the proposed grading with respect to potential paleontological/

archaeological impacts. A meeting between the paleontologist/ archaeologist, Planning Department staff, and grading contractor prior to the commencement of grading operations and the excavation shall be arranged. The paleontologist/archaeologist or representative shall have the authority to temporarily divert, redirect or halt grading activity to allow recovery of fossils.

32. The Pechanga Band of Luiseño Indians shall be contacted to afford the Band an opportunity to monitor ground-disturbing activities and participate in the decisions regarding collection and curation of any such resources. The applicant shall submit correspondence to the Planning Department that confirms that such contact has been made prior to the issuance of a grading permit.

33. The Applicant shall enter into a pre-construction agreement/treatment plan with the Pechanga Band of Luiseño Indians, prior to the issuance of grading permits that sets forth and contains the terms and conditions for the treatment of discoveries of Native American cultural resources. The agreement/treatment plan shall contain provisions for the treatment of all Native American cultural items, artifacts, and human remains that may be uncovered during the project. The agreement/treatment plan may allow for the presence of Pechanga tribal monitors during any ground-disturbing activities. The applicant shall submit a signed copy of the pre-construction agreement/treatment plan to the Planning Department prior to the issuance of a grading permit.

34. The Applicant and/or landowner agrees to relinquish all cultural resources, including all archeological artifacts, that are found on the Project area to the Pechanga Band of Luiseño Indians for proper treatment and disposition. This mitigation measure shall be placed on the grading plan as a note prior to issuance of a grading permit.

35. Prior to any ground disturbance activities a qualified archaeological monitor will be present and will have the authority to stop and redirect grading activities, in consultation with the Pechanga Band of Luiseño Indians and their designated monitors, to evaluate the significance of any archaeological resources discovered on the property. This mitigation measure shall be placed on the grading plan as a note prior to issuance of a grading permit.

36. If any human remains are encountered on the project site, all ground disturbing activities in the vicinity of the discovery will be terminated immediately and the County Coroner's office and the Pechanga Band of Luiseño Indians will be contacted to arrange for the treatment of such remains. This mitigation measure shall be placed on the grading plan as a note prior to issuance of a grading permit.

37. The applicant shall comply with the provisions of Chapter 8.24 of the Temecula Municipal Code (Habitat Conservation) by paying the appropriate fee set forth in that ordinance or by providing documented evidence that the fees have already been paid.

Public Works Department

38. A Grading Plan shall be prepared by a registered Civil Engineer in accordance with City of Temecula standards and approved by the Department of Public Works prior to commencement of any grading. The plan shall incorporate adequate erosion control measures to protect the site and adjoining properties from damage due to erosion.

39. The Developer shall post security and enter into an agreement guaranteeing the grading and erosion control improvements in conformance with applicable City Standards and subject to approval by the Department of Public Works.

40. The Developer shall obtain letters of approval or easements for any off-site work performed on adjoining properties. The letters or easements shall be in a format as directed by the Department of Public Works.

Fire Prevention

41. Maximum cul-de-sac length shall not exceed 1320 feet. Minimum turning radius on any cul-de-sac shall be 37 feet for residential and 45 feet for commercial (CFC 902.2.2.3, CFC 902.2.2.4).

42. Cul-de-sacs and/or intersections with planters must maintain 24-foot clear unobstructed travel width around the planters, not including parking. Hardscape areas are permissible provided that they meet the 80,000 lb. load requirements and are at road level.

43. Private entry driveways with divider medians must be a minimum of 16 feet wide on each side unless the median is held back 30 feet from face of curb of perpendicular road.

44. Fire Department vehicle access roads shall have an unobstructed width of not less than 24 feet and an unobstructed vertical clearance of not less than 13 feet six inches (CFC 902.2.2.1).

45. Prior to building construction, dead end road ways and streets in excess of 150 feet which have not been completed shall have a turnaround capable of accommodating fire apparatus (CFC 902.2.2.4).

PRIOR TO RECORDATION OF THE FINAL MAP

46. The following shall be submitted to and approved by the Planning Department:

a. A copy of the Final Map.

b. A copy of the Environmental Constraint Sheet (ECS) with the following notes:

i. This property is located within 30 miles of Mount Palomar Observatory. All proposed outdoor lighting systems shall comply with the California Institute of Technology, Palomar Observatory recommendations, Ordinance No. 655.

ii. Environmental Impact Report (EIR) SCH No. 2005031017 was prepared for this project and is on file at the City of Temecula Planning Department.

iii. This project is within a 100-year flood hazard zone.

iv. This project is within a liquefaction hazard zone.

v. This project is within an area identified by the City of Temecula General Plan as being a sensitive area with regards to archeological and paleontological resources.

c. In the event the project site is subdivided into multiple parcels, an Owner's Association shall be required to be formed. In addition, Covenants, Conditions, and Restrictions (CC&R's) shall be submitted the City of Temecula for review and approval. CC&R's shall address the following:

i. CC&R's shall be reviewed and approved by the Planning Director. The CC&R's shall include liability insurance and methods of maintaining open space, recreation areas, parking areas, private roads, exterior of all buildings and all landscaped and open areas including parkways.

ii. The CC&R's shall be prepared at the developer's sole cost and expense.

iii. The CC&R's shall be in the form and content approved by the Planning Director, City Engineer and the City Attorney and shall include such provisions as are required by this approval and as said officials deem necessary to protect the interests of the City and it's residents.

iv. The CC&R's and Articles of Incorporation of the Property Owner's Association are subject to the approval of the Planning and Public Works Departments and the City Attorney. They shall be recorded concurrent with the final map. A recorded copy shall be provided to the City.

v. The CC&R's shall provide for the effective establishment, operation, management, use, repair and maintenance of all common areas, drainage and facilities.

vi. The CC&R's shall provide that the property shall be developed, operated and maintained so as not to create a public nuisance.

vii. The CC&R's shall provide that the association may not be terminated without prior City approval.

viii. The CC&R's shall provide that if the property is not maintained in the condition required by the CC&R's, then the City, after making due demand and giving reasonable notice, may enter the property and perform, at the owner's sole expense, any maintenance required thereon by the CC&R's or the City Ordinances. The property shall be subject to a lien in favor of the City to secure any such expense not promptly reimbursed.

ix. Every owner of a suite or lot shall own as an appurtenance to such suite or lot, either (1) an undivided interest in the common areas and facilities, or (2) a share in the corporation, or voting membership in an association owning the common areas and facilities.

x. All open areas and landscaping shall be permanently maintained by the association or other means acceptable to the City. Such proof of this maintenance shall be submitted to the Planning and Public Works Department prior to the issuance of building permits.

xi. Reciprocal access easements and maintenance agreements ensuring access to all parcels and joint maintenance of all roads, drives or parking areas shall be provided by the CC&R's or by deeds and shall be recorded concurrent with the map or prior to the issuance of building permit where no map is involved.

xii. In the event the project site is subdivided into multiple parcels, An Article must be added to every set of CC&Rs to read as follows:

Article ___

CONSENT OF CITY OF TEMECULA

____1. The Conditions of Approval of [Tentative Tract]/[Parcel] Map No.___ requires the City to review and approve the CC&Rs for the Parcel.

____2. Declarant acknowledges that the City has reviewed these CC&Rs and that its review is limited to a determination of whether the proposed CC&Rs properly implement the requirements of the Conditions of Approval for the Parcel. The City's consent to these CC&Rs does not contain or imply any approval of the appropriateness or legality of the other provisions of the CC&Rs, including, without limitation, the use restrictions, private easements and encroachments, private maintenance requirements, architecture and landscape controls, assessment procedures, assessment enforcement, resolution of disputes or procedural matters.

____3. In the event of a conflict between the Conditions of Approval of the land use entitlements issued by the City for the Parcel or Federal, State, or local laws, ordinances, and regulations and these CC&Rs, the provisions of the Conditions of Approval and federal, state or local laws, ordinances, and regulations shall prevail, notwithstanding the language of the CC&Rs.

____4. These CC&Rs shall not be terminated, amended or otherwise modified without the express written consent of the Director of Planning of the City of Temecula.

xiii. In the event the project site is subdivided into multiple parcels, An Article must be added to every set of CC&Rs, following the Declarant's signature, to read as follows:

CONSENT OF CITY OF TEMECULA

The Conditions of Approval for [Tentative Tract]/[Parcel] Map No. ____ require the City of Temecula to review and approve the CC&Rs for the Parcel. The City's review of these CC&Rs has been limited to a determination of whether the proposed CC&Rs properly implement the requirements of the conditions of approval for the Parcel. The City's consent to these CC&Rs does not contain or imply any approval of the appropriateness or legality of the other provisions of the CC&Rs, including, without limitation, the use restrictions, private easements and encroachments, private maintenance requirements, architecture and landscape controls, assessments, enforcement of assessments, resolutions of disputes or procedural matters. Subject to the limitations set forth herein, the City consents to the CC&Rs.

_____

Debbie Ubnoske
Director of Planning

Approved as to Form:

_____

Peter M. Thorson
City Attorney

47. In the event the project site is subdivided into multiple parcels, no lot or suite in the development shall be sold unless a corporation, association, property owner's group or similar entity has been formed with the right to assess all properties individually owned or jointly owned which have any rights or interest in the use of the common areas and common facilities in the development, such assessment power to be sufficient to meet the expenses of such entity, and with authority to control, and the duty to maintain, all of said mutually available features of the development. Such entity shall operate under recorded CC&R's, which shall include compulsory membership of all owners of lots and/or suites and flexibility of assessments to meet changing costs of maintenance, repairs, and services. Recorded CC&R's shall permit enforcement by the City for provisions required as Conditions of Approval. The developer shall submit evidence of compliance with this requirement to, and receive approval of, the City prior to making any such sale. This condition shall not apply to land dedicated to the City for public purposes.

48. In the event the project site is subdivided into multiple parcels, CC&Rs shall be finalized and recorded at the time of Final Map Recordation.

49. In the event the project site is subdivided into multiple parcels, three copies of the final recorded CC&Rs shall be provided to the Planning Department.

50. All of the foregoing conditions shall be complied with prior to occupancy or any use allowed by this permit.

PUBLIC WORKS DEPARTMENT

51. The Developer shall receive written clearance from the following agencies:

    a. Rancho California Water District
    b. Eastern Municipal Water District
    c. Riverside County Flood Control and Water Conservation District
    d. City of Temecula Fire Prevention Bureau
    e. Planning Department
    f. Department of Public Works
    g. Riverside County Health Department
    h. Cable TV Franchise
    i. Community Services District
    j. Verizon
    k. Southern California Edison Company
    l. Southern California Gas Company

52. The Developer shall design and guarantee construction of the following public improvements to City of Temecula General Plan standards unless otherwise noted. Plans shall be reviewed and approved by the Department of Public Works:

    a. Improve Highway 79 South (Urban Arterial Highway Standards - 134' R/W) to include installation of sidewalk, street lights, drainage facilities, signing and striping, and utilities (including but not limited to water and sewer connections).

i. Westbound

a) The dedicated right turn lane into the main entry (Country Glen Way) shall be 12 feet wide and 200 feet long at a minimum

b) Provide three (3) thru lanes

c) Provide one (1) thru lanes

ii. Eastbound

a) Provide two (2) left turn lanes

b) Provide two (2) thru lanes and

c) Provide one (1) shared thru/right lane

iii. Modify the existing traffic signal at the intersection of Highway 79 South and Country Glen Way.

b. Improve De Portola Road (Modified Secondary Arterial (4 lane separated) – 88' R/W) to include installation of half-width street improvements, paving, street lights, drainage facilities, signing and striping, utilities (including but not limited to water and sewer connections).

c. State Route 79/Redhawk Parkway (Margarita Road) - Provide southbound and eastbound right turn traffic signal overlap.

53. Private roads shall be designed to meet City public road standards. Unless otherwise approved the following minimum criteria shall be observed in the design of private streets:

a. Dona Lynora (66' R/W) to include the installation of half-width street improvements, paving, curb and gutter, utilities (including but not limited to water and sewer)

b. Private 28 foot wide ingress/egress road connecting to De Portola Road to include installation of paving and curb per the approved site plan

c. Main Entry/Country Glen Way

i. Provide a 245' continuous median from Highway 79 South to main drive aisle

ii. Southbound (exiting site)

a) Provide two (2) left turn lanes

b) Provide a 20 foot wide shared thru/right turn lane

iii. Northbound (entering site) – 28 foot wide

54. Unless otherwise approved the following minimum criteria shall be observed in the design of the street improvement plans:

a. Street centerline grades shall be 0.5% minimum over P.C.C. and 1.00% minimum over A.C. paving

b. Driveways shall conform to the applicable City Standard No. 207A

c. Street lights shall be installed along the public streets shall be designed in accordance with City Standard No. 800, 801, 802 and 803

d. Concrete sidewalks shall be constructed in accordance with City Standard Nos. 400 and 401

e. All street and driveway centerline intersections shall be at 90 degrees

f. Landscaping shall be limited in the corner cut-off area of all intersections and adjacent to driveways to provide for minimum sight distance and visibility

g. All utility systems including gas, electric, telephone, water, sewer, and cable TV shall be provided underground. Easements shall be provided as required where adequate right-of-way does not exist for installation of the facilities. All utilities shall be designed and constructed in accordance with City Codes and the utility provider.

h. All utilities, except electrical lines rated 34kv or greater, shall be installed underground

55. A construction area Traffic Control Plan shall be designed by a registered Civil Engineer and reviewed by the Department of Public Works for any street closure and detour or other disruption to traffic circulation as required by the Department of Public Works.

56. Relinquish and waive right of access to and from Highway 79 South on the Parcel Map with the exception of two openings as delineated on the approved Tentative Parcel Map.

57. Relinquish and waive right of access to and from De Portola Road on the Parcel Map with the exception of one opening as delineated on the approved Tentative Parcel Map.

58. All easements and/or right-of-way dedications shall be offered for dedication to the public or other appropriate agency and shall continue in force until the City accepts or abandons such offers. All dedications shall be free from all encumbrances as approved by the Department of Public Works.

59. Any delinquent property taxes shall be paid.

60. An Environmental Constraints Sheet (ECS) shall be prepared in conjunction with the Parcel Map to delineate identified environmental concerns and shall be recorded with the map.

61. The Developer shall comply with all constraints which may be shown upon an Environmental Constraint Sheet recorded with any underlying maps related to the subject property.

62. The Developer shall make a good faith effort to acquire the required off-site property interests, and if he or she should fail to do so, the Developer shall, prior to submittal of the Parcel Map for recordation, enter into an agreement to complete the improvements pursuant to the Subdivision Map Act, Section 66462 and Section 66462.5. Such agreement shall provide for payment by the Developer of all costs incurred by the City to acquire the off-site property interests required in connection with the subdivision. Security of a portion of these costs shall be in the form of a cash deposit in the amount given in an appraisal report obtained by the Developer, at the Developer's cost. The appraiser shall have been approved by the City prior to commencement of the appraisal.

63. A copy of the grading and improvement plans, along with supporting hydrologic and hydraulic calculations shall be submitted to the Riverside County Flood Control and Water Conservation District for approval prior to recordation of the Parcel Map or the issuance of any permit. A permit from Riverside County Flood Control and Water Conservation District is required for work within their right-of-way.

64. The Developer shall notify the City's cable TV Franchises of the Intent to Develop. Conduit shall be installed to cable TV Standards at time of street improvements.

65. Bus bays will be provided at all existing and future bus stops as determined by the Department of Public Works.

66. Easements, when required for roadway slopes, landscape easements, drainage facilities, utilities, etc., shall be shown on the final map if they are located within the land division boundary. All offers of dedication and conveyances shall be submitted for review and recorded as directed by the Department of Public Works. On-site drainage facilities located outside of road right-of-way shall be contained within drainage easements and shown on the final map. A note shall be added to the final map stating, *"drainage easements shall be kept free of buildings and obstructions."*

Fire Prevention

67. Prior to map recordation the applicant shall submit to the Fire Prevention Bureau a georectified (pursuant to Riverside County standards) digital version of the map including parcel and street centerline information. The electronic file will be provided in a ESRI ArcInfo/ArcView compatible format and projected in a State Plane NAD 83 (California Zone VI) coordinate system. The Bureau must accept the data as to completeness, accuracy and format prior to satisfaction of this condition.

PRIOR TO ISSUANCE OF BUILDING PERMITS

Public Works

68. Prior to the first building permit, Parcel Map No. 32468 shall be recorded, unless otherwise approved by the Director of Public Works.

69. A Precise Grading Plan shall be submitted to the Department of Public Works for review and approval. The building pad shall be certified by a registered Civil Engineer for location and elevation, and the Soils Engineer shall issue a Final Soils Report addressing compaction and site conditions.

70. Grading of the subject property shall be in accordance with the California Building Code, the approved grading plan, the conditions of the grading permit, City Grading Standards and accepted grading construction practices. The final grading plan shall be in substantial conformance with the approved rough grading plan.

71. The Developer shall pay to the City the Public Facilities Development Impact Fee as required by, and in accordance with, Chapter 15.06 of the Temecula Municipal Code and all Resolutions implementing Chapter 15.06.

72. The Developer shall pay to the City the Western Riverside County Transportation Uniform Mitigation Fee (TUMF) Program as required by, and in accordance with, Chapter 15.08 of the Temecula Municipal Code and all Resolutions implementing Chapter 15.08.

PRIOR TO ISSUANCE OF CERTIFICATES OF OCCUPANCY

Public Works

73. Prior to the first Certificate of Occupancy in Phase I, the following improvements shall be constructed and operational:

a. Highway 79 South

i. Traffic signal modifications at the intersection of Highway 79 South and Country Glen Way

ii. Roadway improvements

a) Westbound

(i) Provide a dedicated right turn lane - 12 foot wide by 200 feet long

(ii) Provide three (3) thru lanes

(iii) Provide one (1) left turn lane

b) Eastbound

(i) Provide two (2) left turn lanes

(ii) Provide two (2) thru lanes and

(iii) Provide one (1) shared thru/right lane

b. Main Entry/Country Glen Way

i. Provide a 245' continuous median from Highway 79 South to main drive aisle

ii. Southbound (exiting site)

a) Provide two (2) left turn lanes

b) Provide a 20 foot wide shared thru/right turn lane

iii. Northbound (entering site) – 28 foot wide

c. De Portola Road (Modified Secondary Arterial (4 lane separated) – 88' R/W)

i. Half-width roadway improvements

ii. 28 foot wide internal ingress/egress connection from project site to De Portola Road

d. State Route 79/Redhawk Parkway (Margarita Road)

i. Southbound and eastbound right turn traffic signal overlap

e. Dona Lynora (66' R/W)

i. Installation of half-street improvements, paving, curb and gutter, utilities (including but not limited to water and sewer)

ii. Restricted to right in/right out vehicular movement

74. As deemed necessary by the Department of Public Works, the Developer shall receive written clearance from the following agencies:

a. Rancho California Water District

b. Eastern Municipal Water District

c. Department of Public Works

75. All public improvements, including traffic signal modification, shall be constructed and completed per the approved plans and City standards to the satisfaction of the Director of the Department of Public Works.

76. The existing improvements shall be reviewed. Any appurtenance damaged or broken shall be repaired or removed and replaced to the satisfaction of the Director of the Department of Public Works.

Fire Prevention

77. Prior to Occupancy and building final, all locations where structures are to be built shall have approved Fire Department vehicle access roads to within 150 feet to any portion of the facility or any portion of an exterior wall of the building(s). Fire Department access roads shall be an all weather surface designed for 80,000 lbs. GVW with a minimum AC thickness of .25 feet (CFC sec 902).

78. Prior to issuance of a Certificate of Occupancy or building final, "Blue Reflective Markers" shall be installed to identify fire hydrant locations (CFC 901.4.3).

79. Prior to issuance of Occupancy all manual and electronic gates on required Fire Department access roads or gates obstructing Fire Department building access shall be provided with the Knox Rapid entry system for emergency access by firefighting personnel (CFC 902.4).

OUTSIDE AGENCIES

80. The applicant shall comply with the recommendations set forth in the County of Riverside Department of Environmental Health's transmittal dated January 19, 2005, a copy of which is attached.

81. The applicant shall comply with the recommendations set forth in the Rancho California Water District's transmittal dated November 19, 2004, a copy of which is attached.

COUNTY OF RIVERSIDE • COMMUNITY HEALTH AGENCY

DEPARTMENT OF ENVIRONMENTAL HEALTH

July 7, 2004

RECEIVED
JUL 0 8 2004
By

City of Temecula Planning Department
P.O. Box 9033
Temecula, CA 92589-9033
Attention: Dan Long

RE: Plot Plan No. PA04-0462 & PA04-0463

Dear Mr. Long:

Department of Environmental Health has reviewed the Plot Plan No. PA04-0462 & PA04-0463 to construct Temecula Regional Hospital and has no objections. Water and sewer services should be available in this area, although we have not in receipt of any information concerning those services.

PRIOR TO THE ISSUANCE OF BUILDING PERMITS THE FOLLOWING SHOULD BE REQUIRED:

a) "Will-serve" letters from the appropriate water and sewering districts.

b) Any food establishments, (including vending machines), shall require three complete sets of plans for each food establishment will be submitted including a fixture schedule, a finish schedule and a plumbing schedule in order to ensure compliance with the California Uniform Retail Food Facilities Law 2. For specific reference, contact Food Facility Plan Examiners at (909) 600-6330.

c) Any hazardous materials handling or storage shall require a clearance letter from the Department of Environmental Health Hazardous Materials Management Branch (955-5055)

Sincerely,

Sam Martinez, Supervising Environmental Health Specialist
(909) 955-8980

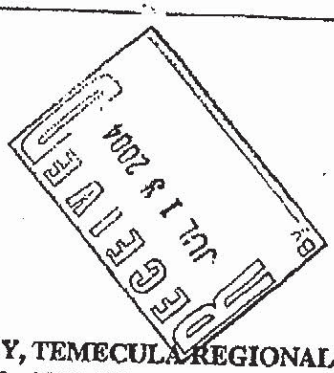
NOTE: Any current additional requirements not covered can be applicable at time of Building Plan review for final Department of Environmental Health clearance.

cc: Doug Thompson, Hazardous Materials

Rancho Water

July 12, 2004

Dan Long, Project Planner
City of Temecula
Planning Department
Post Office Box 9033
Temecula, CA 92589 - 9033



SUBJECT: WATER AVAILABILITY, TEMECULA REGIONAL HOSPITAL; PARCELS NO. 1, NO. 2, AND NO. 3 OF PARCEL MAP 13043; PARCEL 4 OF PARCEL MAP 6813; AND PARCELS NO. 1, NO. 2, NO. 3, AND NO. 4 OF PARCEL MAP 13734; APN 959-080-001 THROUGH APN 959-080-004, AND APN 959-080-007 THROUGH APN 959-080-010; PA04-0462 AND PA04-0463

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Director of Engineering
Perry R. Louck
Controller
Linda M. Pregoso
District Secretary/Administrative Services Manager
O. Michael Cowett
Best Best & Krieger LLP
General Counsel

Dear Mr. Long:

Please be advised that the above-referenced property is located within the boundaries of Rancho California Water District (RCWD). Water service, therefore, would be available upon construction of any required on-site and/or off-site water facilities and the completion of financial arrangements between RCWD and the property owner.

If fire protection is required, the customer will need to contact RCWD for fees and requirements. Water availability would be contingent upon the property owner signing an Agency Agreement that assigns water management rights, if any, to RCWD.

All on-site public water facilities will require public utility easements in favor of RCWD. The project proposes to relocate RCWD's 12-inch discharge pipeline and the associated easement from RCWD Well No. 120. This pipeline must be contained within a minimum 20-foot-wide easement, which is located such that no permanent structures or trees are located within its boundaries. The project proponent should schedule a meeting with RCWD to confirm and detail these requirements.

If you have any questions, please contact an Engineering Services Representative at this office.

Sincerely,

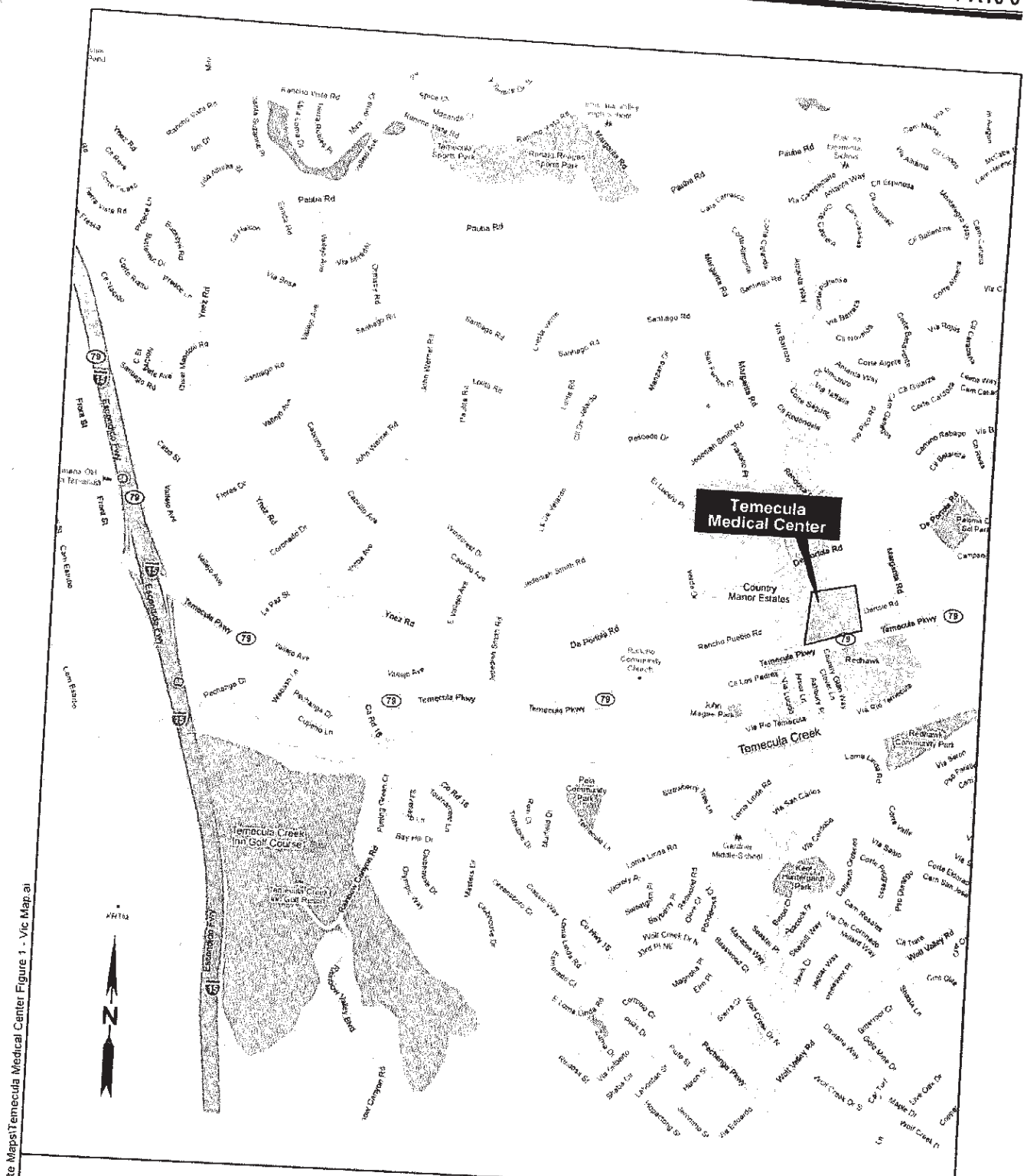
RANCHO CALIFORNIA WATER DISTRICT

Michael G. Meyerpeter, PE
Development Engineering Manager
04\MM:mc018\FCP

c: Laurie Williams, Engineering Services Supervisor
Bud Jones, Engineering Project Coordinator

Appendix B

Vicinity Map, Receiving Waters Map, and WQMP Site Plan


Temecula Medical Center
Country Manor Estates
Redhawk
Temecula Creek
Temecula Creek Inn Golf Course
Temecula Pkwy
Rancho Vista Rd
Pauba Rd
Ynez Rd
Margarita Rd
Da Portola Rd
Jedediah Smith Rd
Rancho Pueblo Rd
Via Rio Temecula
Loma Linda Rd
Via San Carlos
Wolf Valley Rd
Rancho California Rd
Butterfield Stage Rd
Redhawk Community Park
Pala Community Park
John Magee Park
Temecula Creek Inn Golf Course
Temecula Valley Golf Course
Temecula Valley Middle School
Chaparral High School
Rancho Vista Elementary School
Margarita Elementary School
Rancho Vista Community Park
Temecula Sports Park
Rancho Vista Baptist Church
Rancho Pueblo Community Church
Temecula Creek Inn Golf Course
Temecula Valley Golf Course
Temecula Creek
Temecula Valley Blvd
Via Rio Temecula
Via Lucero
Via Las Palmas
Via Valencia
Via Ventura
Via Arboleda
Via Del Corrado
Via Del Coronado
Via Del Rey
Via Del Agua
Via Del Oro
Via Del Rio
Via Del Sol
Via Del Verano
Via Del Vista
Via Del Campo
Via Del Cielo
Via Del Norte
Via Del Oeste
Via Del Este
Via Del Sur
Via Del Lago
Via Del Mar
Via Del Monte
Via Del Prado
Via Del Puente
Via Del Rancho

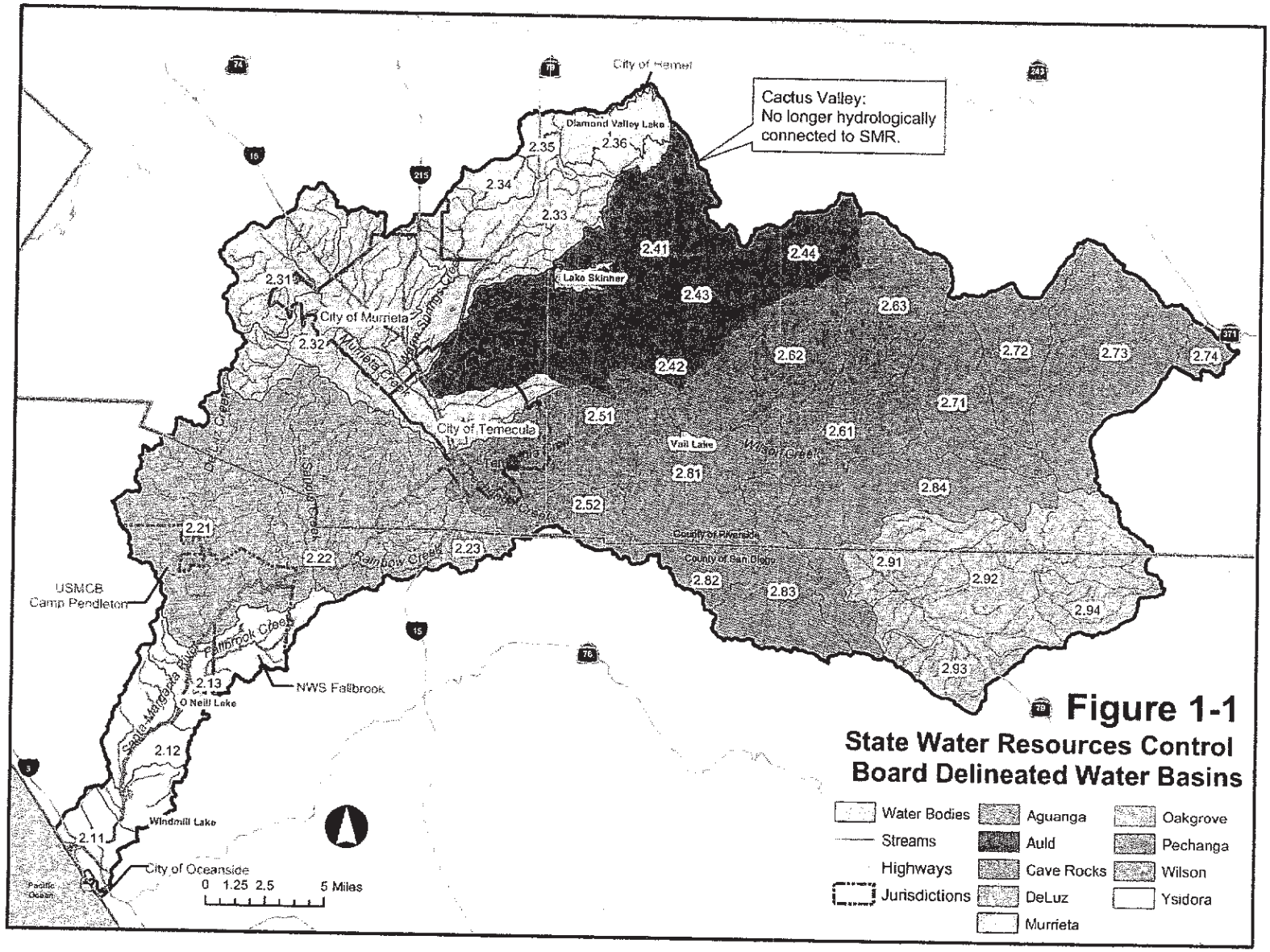
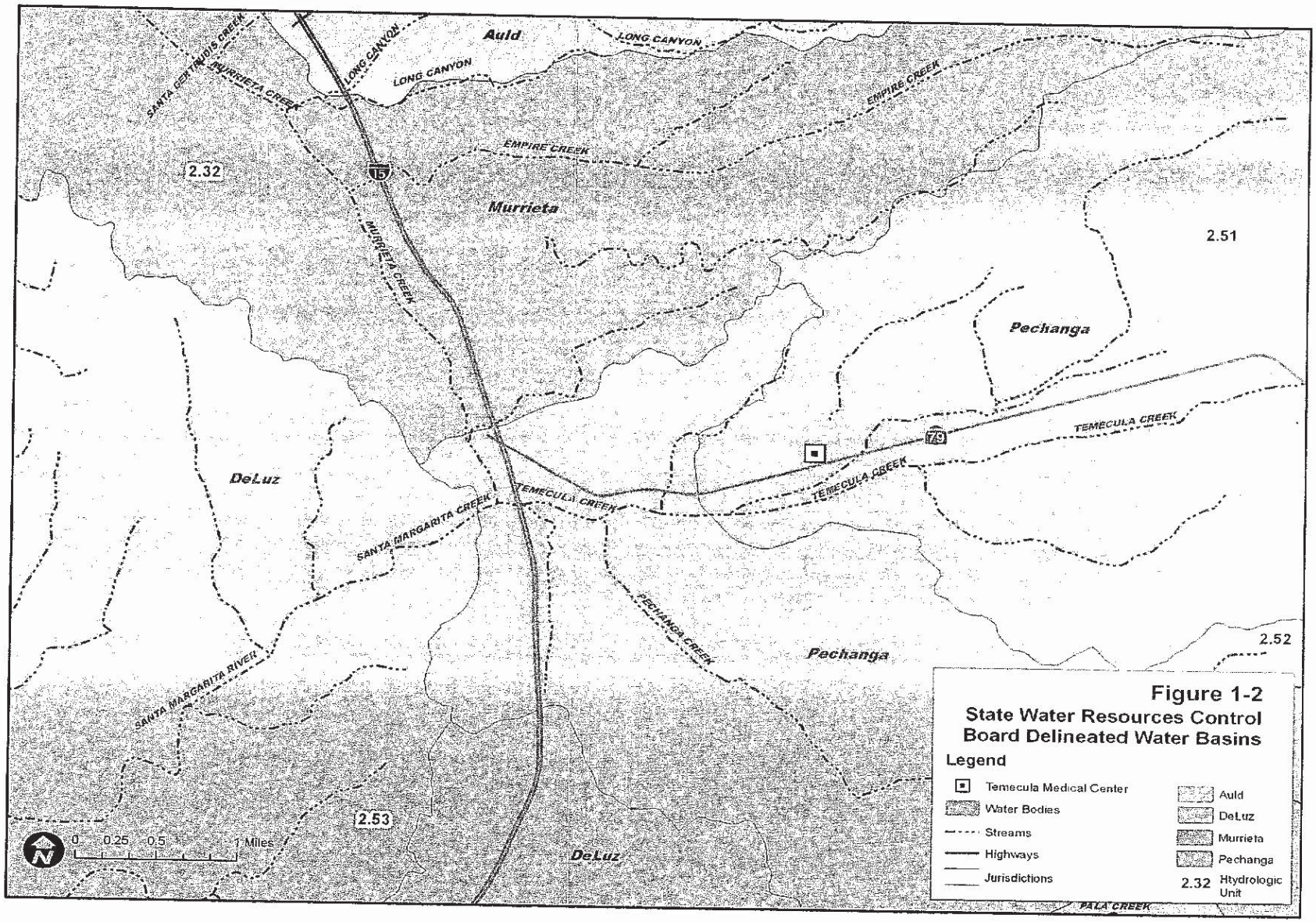
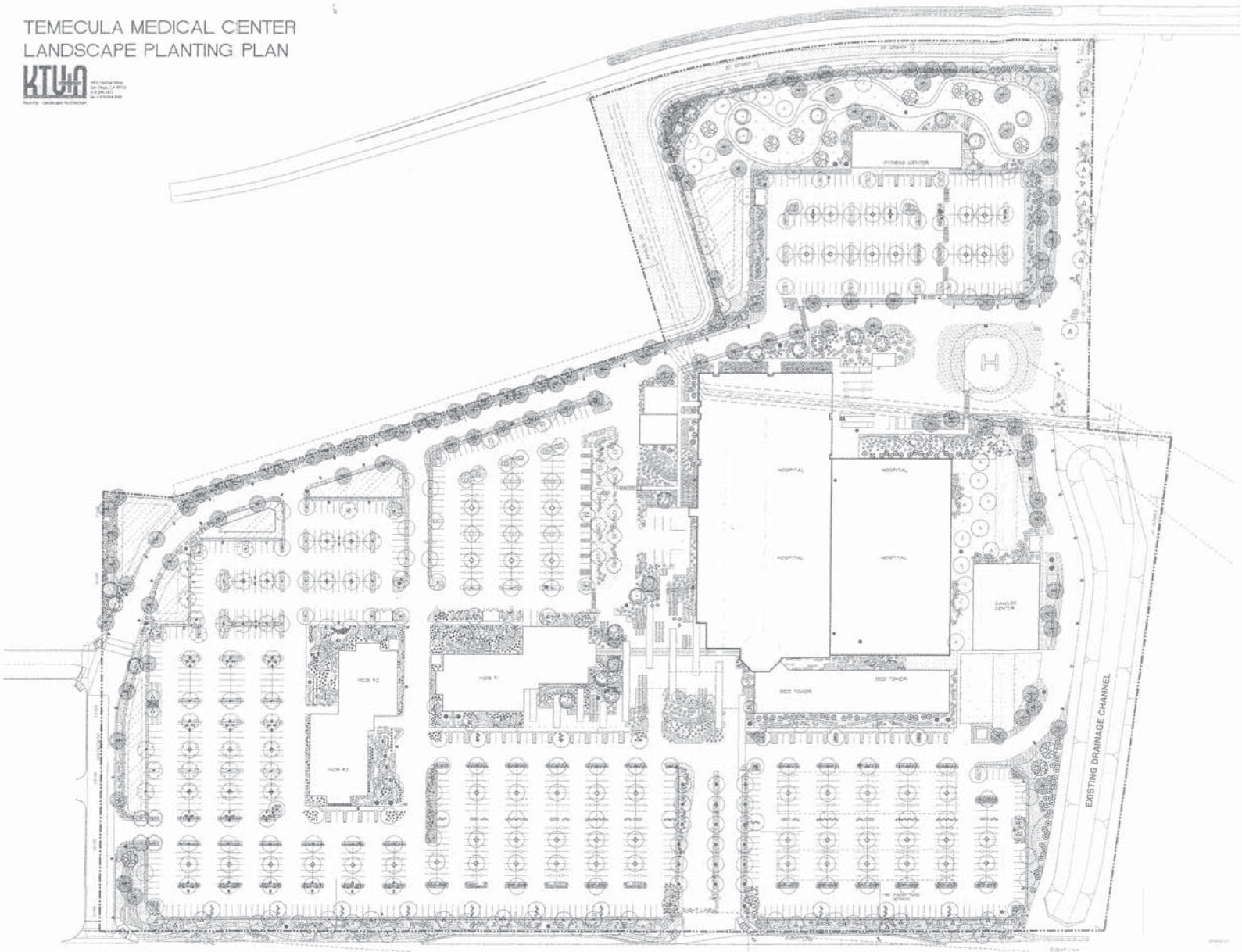


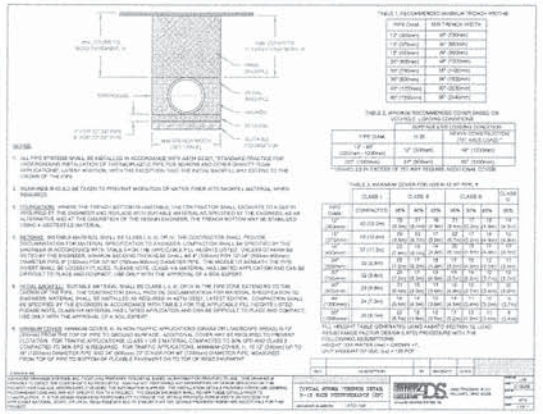
Figure 1-1
State Water Resources Control Board Delineated Water Basins

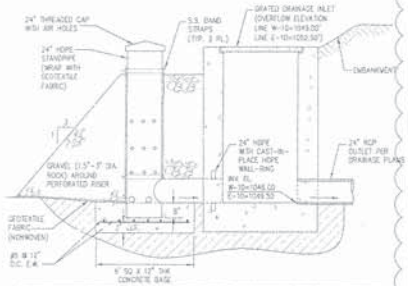

Auld
Murrieta
Pechanga
DeLuz
2.32
2.51
2.52
2.53
LONG CANYON
EMPIRE CREEK
MURRIETA CREEK
TEMECULA CREEK
SANTA MARGARITA CREEK
SANTA MARGARITA RIVER
PECHANGA CREEK
PALA CREEK
SANTA GERTRUDIS CREEK
15
79
0 0.25 0.5 1 Miles
N
Figure 1-2
State Water Resources Control Board Delineated Water Basins
Legend
Temecula Medical Center
Water Bodies
Streams
Highways
Jurisdictions
Auld
DeLuz
Murrieta
Pechanga
2.32 Htydrologic Unit

TEMECULA MEDICAL CENTER
LANDSCAPE PLANTING PLAN

KTUA

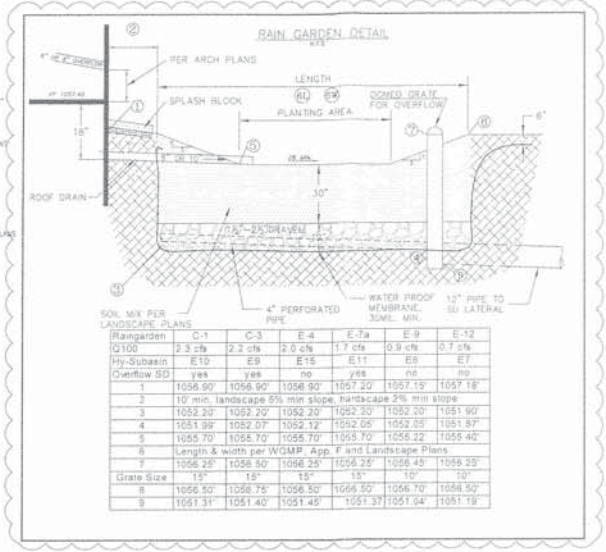




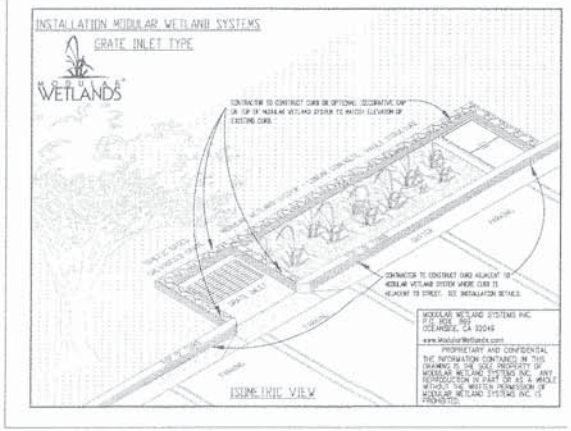


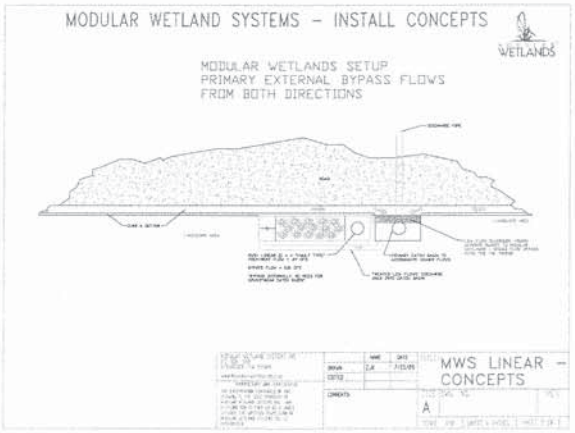
STANDPIPE SIZING TABLE	
RISER	24" HDPE SDR-17
NUMBER OF PERFORATED COLUMNS	3 SPACED EVENLY
NUMBER OF PERFORATED ROWS	3 SPACED EVENLY
SPACING BETWEEN PERFORATION ROWS	8" O.C.
PERFORATION DIAMETER AT BOTTOM ROW	1/4"
PERFORATION DIAMETER AT TOP 3 ROWS	1/2"
RISER HEIGHT	3'
BASIN OVERFLOW ELEVATION	1049.00'W-10 & 1052.50'E-10
BASIN FREEBOARD	12" MIN.

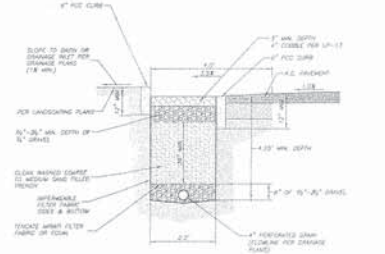
DETENTION BASIN STANDPIPE DETAIL
NOT TO SCALE



Raingarden	C-1	C-3	E-4	E-7a	E-9	E-12
Q100	2.3 cfs	2.2 cfs	2.0 cfs	1.7 cfs	0.9 cfs	0.7 cfs
Hy-Subasin	E10	E9	E15	E11	E6	E7
Overflow SD	yes	yes	no	yes	no	no
1	1056.90'	1056.90'	1056.90'	1057.20'	1057.15'	1057.18'
2	10' min. landscape 5% min slope, hardscape 2% min slope					
3	1052.20'	1052.20'	1052.20'	1052.20'	1052.20'	1051.90'
4	1051.99'	1052.07'	1052.12'	1052.05'	1052.05'	1051.87'
5	1055.70'	1055.70'	1055.70'	1055.70'	1055.22'	1055.40'
6	Length & width per WQMP, App. F and Landscape Plans					
7	1056.25'	1056.50'	1056.25'	1056.25'	1056.45'	1056.25'
Grate Size	15"	15"	15"	15"	10"	10"
8	1056.50'	1058.75'	1056.50'	1066.50'	1066.70'	1056.50'
9	1051.31'	1051.40'	1051.45'	1051.37'	1051.04'	1051.19'







Don't Dig, Unless You Call U.S.A. Toll Free 1-800-227-2600

BUILDING AND SAFETY
REVIEWED FOR COMPLIANCE WITH TITLE 24 DISABLED ACCESS AND ACCESSIBILITY ONLY
APPROVED BY: _____ NAME _____ DATE

Client:
UHS
Universal Health Services, Inc
367 South Gulph Road
King of Prussia, PA 19406
T 610 768 3300

Architect of Record:
HMC Architects
1210 Second Ave, Suite 810
West Tower
San Diego, CA 92101
T 619 744 4007

Civil Engineer:
URS
1615 Dimmitt Rd Suite
Suite 5200
Dallas, Texas 75201
(214) 741-7777
(214) 741-9473 Fax

Design/Build Partners:
Turner Construction Company
DPR Construction Inc

Temecula Valley Hospital
Temecula, CA.

Agency Approval

Office of Riverside County Planning & Development Fire/Urban Development Division

DBHPD NO.

HMC Project No. 2308006

PLANS ISSUED FOR REVIEW ONLY

REVISION

LD10-019GR

REVISIONS TO APPROVED PLANS - 8/8/11

CONSTRUCTION RECORD	DATE	BY	REVISIONS	ACCT	DATE	BENCH MARK	SCALE	SEAL	Designed By	Drawn By	Checked By
Contractor						DESCRIPTION: STAMPED ON A 4" DIA. IRON ROD WITH 4" I.D. CAP LOCATED 7.0 MILES SOUTHERLY ON TEMECULA CANYON ROAD FROM MAIN STREET, 1.9 MILES SOUTH OF RANCHO CALIFIA ROAD. ELEVATION: 1260.439' DATUM: N.G.V.D. 29	HORIZONTAL	PROGRESS PRINT THIS DOCUMENT MAY NOT BE USED FOR CONSTRUCTION PURPOSES UNLESS ISSUED UNDER AUTHORITY OF MARGIE MARIE DE LAURELL, P.E. CALIFORNIA P.E. NO.61648	SBC	JLS	WSL
Inspector							VERTICAL		Plans Prepared Under Supervision Of: MARGIE MARIE DE LAURELL R.C.E. NO. C52648		DATE 8/8/11
Date Completed											

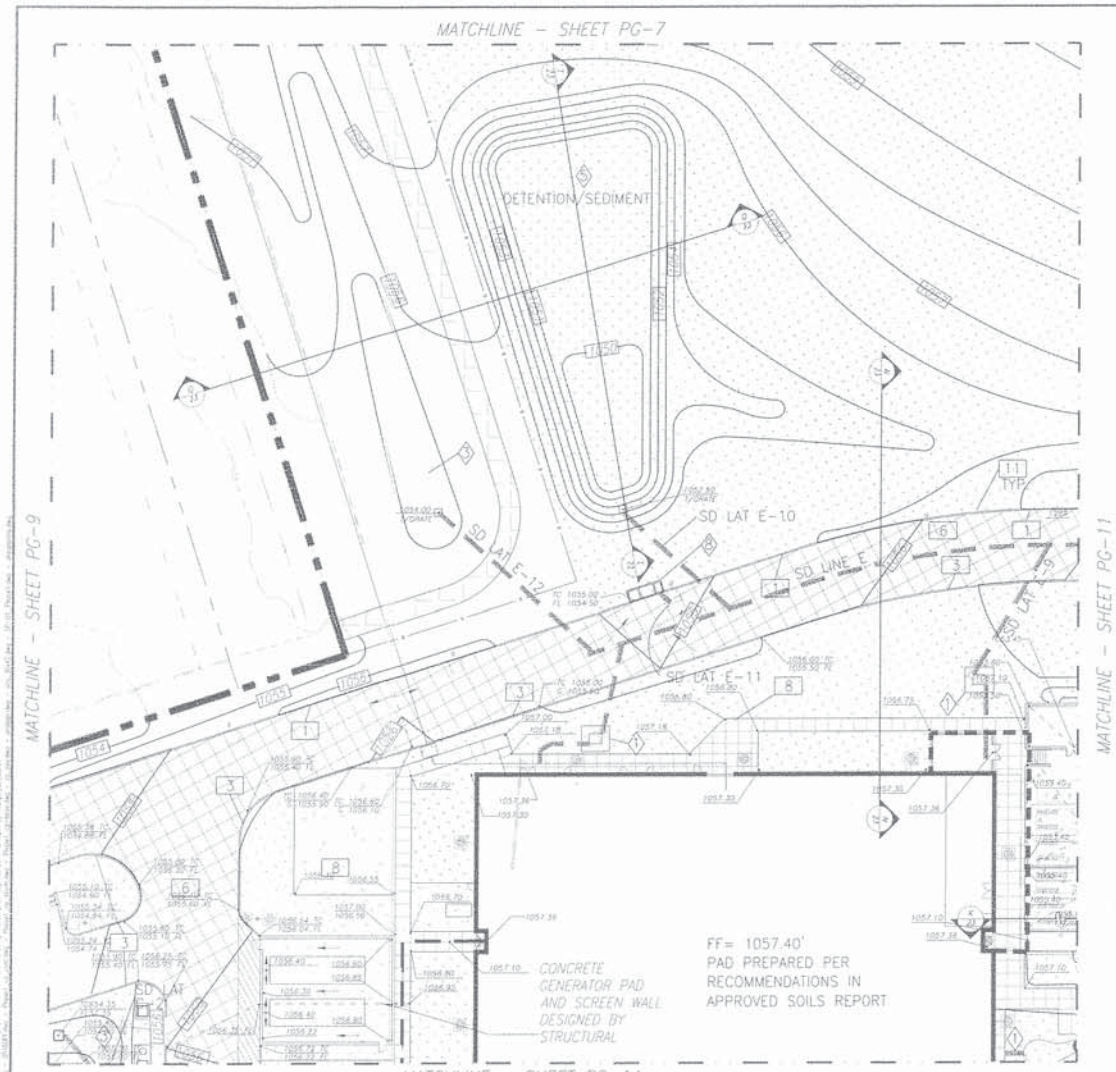
RECOMMENDED BY: _____ DATE: _____

ACCEPTED BY: _____ DATE: _____
CRAIG BUTLER
DIRECTOR OF PUBLIC WORKS/CITY ENGINEER
R.C.E. NO. 47109

CITY OF TEMECULA DEPARTMENT OF PUBLIC WORKS

TEMECULA VALLEY HOSPITAL
WQMP & STORM DRAIN DETAILS
PM 32468/PA10-0194

Drawing No.
WQMP - 5
Sheet 5 of 7



CONSTRUCTION NOTES:

1. CONSTRUCT TYPE "A-6" CURB AND GUTTER PER CITY OF TEMECULA STANDARD No. 200. (SEE SHEET PG-20)
2. CONSTRUCT 0-6 CURB PER CITY OF TEMECULA STANDARD No. 204A. (SEE SHEET PG-20)
3. PROPOSED 6" OF PORTLAND CEMENT CONCRETE PAVEMENT OVER 4" OF CLASS II AGGREGATE BASE (TRAFFIC INDEX RATING = 7.0)
4. PROPOSED 4" ASPHALTIC CONCRETE PAVEMENT OVER 6" OF CLASS II AGGREGATE BASE (TRAFFIC INDEX RATING = 7.0)
5. ON-SITE SIDEWALK PROPOSED 4" OF PORTLAND CEMENT CONCRETE PAVEMENT OVER 4" OF CLASS II AGGREGATE BASE
6. INSTALL ONSITE LIGHTS - TYPE A FOR REFERENCE ONLY (SEE ELECTRICAL PLANS FOR DETAILS)
7. CONSTRUCT RAIN GARDEN ROOF DRAIN FILTER BED (SEE LANDSCAPE PLANS)
8. CONSTRUCT VEGETATIVE SWALE (SEE LANDSCAPE PLANS)
9. CONSTRUCT SAND FILTER STRIP (SEE DETAIL PG-40)
10. CONSTRUCT DETENTION/SEDIMENT/INFILTRATION BASIN (SEE LANDSCAPE PLANS)
11. INSTALL MODULAR RETAINING SYSTEM TYPE-14 CURB TYPE (SEE SHEETS PG-40 - PG-41)

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- SPOT ELEVATION (TOP OF CURB)
- SPOT ELEVATION (GUTTER)
- SPOT ELEVATION (FINISHED GRADE)
- TO BE CONSTRUCTED WITH STREET IMPROVEMENT PLANS
- ONSITE LIGHTS - FOR REFERENCE ONLY (SEE ELECTRICAL PLANS FOR DETAILS)
- PROPOSED STORM DRAIN, (SEE SHTS. PG-29 THRU PG-39)
- SEE LANDSCAPE PLAN
- GRADE BREAK
- ADA ACCESSIBLE PATH (PER ARCH. PLAN)

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BUILDING AND SAFETY
REVIEWED FOR COMPLIANCE WITH TITLE 24 DISABLED ACCESS AND ACCESSIBILITY ONLY
APPROVED BY: _____ NAME _____ DATE

Client: UHS Universal Health Services, Inc. 367 South Gulph Road King of Prussia, PA 19406 T 610.768.3300

Architect of Record: HMC Architects 7535 Gerrard Ave. Studio #10 (East Tower) San Diego, CA 92111 T 619.744.4077

Civil Engineer: URS 1900 Stemmons Freeway Suite 6000 Dallas, Texas 75207 (214) 741-7777 (214) 741-4613 fax

Design/Build Partners: Turner Construction Company; DPR Construction

Temecula Valley Hospital
Temecula, CA.

Agency Approval

USGHD NO.



HMC Project No. 2308006

PLANS ISSUED FOR GRADING ONLY

REVISIONS

LD10-019GR

REVISIONS TO APPROVED PLANS - 8/8/11

CONSTRUCTION RECORD	DATE	BY	REVISIONS	ACCD	DATE
Contractor					
Inspector					
Date Completed					

BENCH MARK: BRASS CAP STAMPED OR 2 & 1/2" BRASS DISK IN A 6" SQ. "SCT" LOCATED 2.0 MILES SOUTHEAST OF TEMECULA PARKWAY FROM KARA STREET, 1.8 MILES SOUTH ON RANCHO CALIFORNIA ROAD. ELEVATION: 1053.681 DATE: 9-21-87

SCALE: HORIZONTAL; VERTICAL

SEAL: PROGRESS PRINT — THIS DOCUMENT MAY NOT BE USED FOR CONSTRUCTION, RELEASED UNDER AUTHORITY OF: MARDIE M DE LAURELL, P.E. CALIFORNIA P.E. #C59448

Designed By	Drawn By	Checked By
SEL		MDL

Plans Prepared Under Supervision Of: MARDIE MARIE DE LAURELL, R.C.E. NO. C59448, DATE 8/8/11

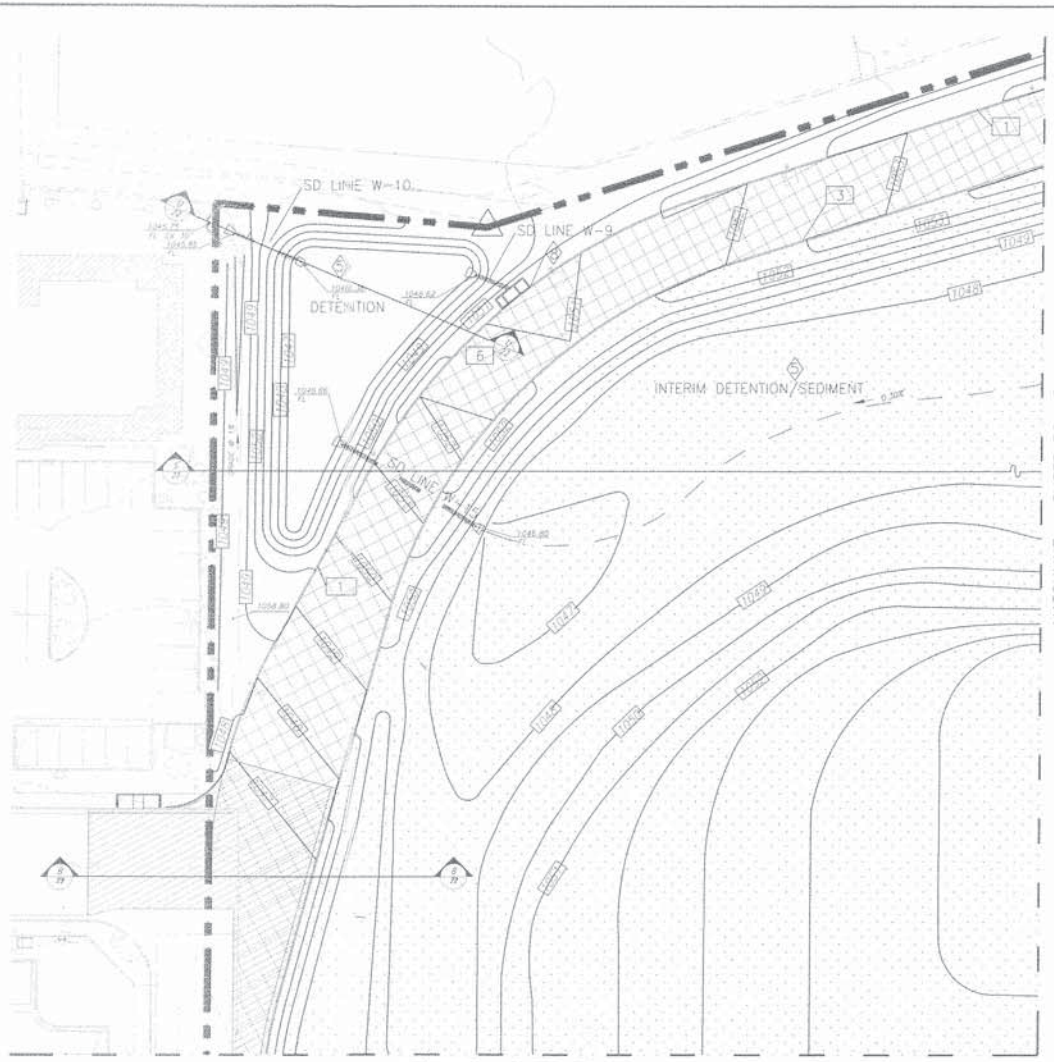
RECOMMENDED BY: _____ DATE: _____

ACCEPTED BY: _____ DATE: _____
CHRIS BUTLER
DIRECTOR OF PUBLIC WORKS/CITY ENGINEER
R.C.E. NO. 47109

CITY OF TEMECULA DEPARTMENT OF PUBLIC WORKS

TEMECULA VALLEY HOSPITAL
PRECISE PAVING & GRADING PLAN
PM 32468/PA10-0194

Drawing No. **PG-10**
Sheet 10 OF 32



CONSTRUCTION NOTES:

1. CONSTRUCT TYPE "A-4" CURB AND GUTTER PER CITY OF TEMECULA STANDARD No. 200. (SEE SHEET PG-20)
2. CONSTRUCT D-6 CURB PER CITY OF TEMECULA STANDARD No. 204A. (SEE SHEET PG-20)
4. PROPOSED 4" ASPHALTIC CONCRETE PAVEMENT OVER 6" OF CLASS II AGGREGATE BASE (TRAFFIC INDEX RATING = 7.0)
5. CONSTRUCT DETENTION/SEDIMENT/INFILTRATION BASIN (SEE LANDSCAPE PLANS)
8. INSTALL MODULAR WETLAND SYSTEM TYPE-14' CURB TYPE (SEE SHEETS PG-40 – PG-41)

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- SPOT ELEVATION (TOP OF CURB)
- SPOT ELEVATION (GUTTER)
- SPOT ELEVATION (FINISHED GRADE)
- TO BE CONSTRUCTED WITH STREET IMPROVEMENT PLANS
- ONSITE LIGHTS – FOR REFERENCE ONLY (SEE ELECTRICAL PLANS FOR DETAILS)
- PROPOSED STORM DRAIN. (SEE SHTS. PG-29 THRU PG-43)
- SEE LANDSCAPE PLAN
- GRADE BREAK
- ADA ACCESSIBLE PATH (PER ARCH. PLAN)

Dial 1 Sig. Until You Call U.S.A. Toll Free 1-800-227-2600

BUILDING AND SAFETY
REVIEWED FOR COMPLIANCE WITH TITLE 24 DISABLED ACCESS AND ACCESSIBILITY ONLY
APPROVED BY _____ NAME _____ DATE

Client:
UHS
Universal Health Services, Inc
367 South Gulph Road
King of Prussia, PA 19406
T 610.768.3300

Architect of Record:
HMC Architects
1010 Second Ave., Suite 810
MarkT Tower
San Diego, CA 92101
T 619.744.4077

Civil:
URS
1100 Glendon Avenue
Suite 1500
Los Angeles, CA 90024
T 310.231.1000

Design/Build Partners:
Turner Construction Company
DPR Construction

Temecula Valley Hospital
Temecula, CA.

Agency Approval

HMC Project No. 2309006

PLANS ISSUED FOR REVIEW ONLY

REVISIONS

LD10-019GR

REVISIONS TO APPROVED PLANS - 8/8/11

CONSTRUCTION RECORD	DATE	BY	REVISIONS	ACCD	DATE	BENCH MARK	SCALE	SEAL
Contractor _____ Inspector _____ Date Completed _____						BENCH MARK: STAMPED ON 2 & 1/2" BRASS DISK IN 4"x4" CONC. MONUMENT WELL AT THE INTERSECTION OF MARGARITA ROAD AND TEMECULA CANYON ROAD FROM WHICH A TIE EXISTS 1.5 FEET SOUTH OF THE CENTERLINE OF TEMECULA CANYON ROAD, 0.5 FEET EAST OF THE CENTERLINE OF MARGARITA ROAD. ELEVATION: 1052.487' DATE: 8-01-83	HORIZONTAL: VERTICAL:	PROGRESS PRINT THIS DOCUMENT MAY NOT BE USED FOR CONSTRUCTION PURPOSES UNLESS SIGNED BY THE AUTHORITY HAVING JURISDICTION MARGIE MOE LAURELL, R.E. CALIFORNIA R.C.E. #C58448

Designed By	Drawn By	Checked By
SG		MDL

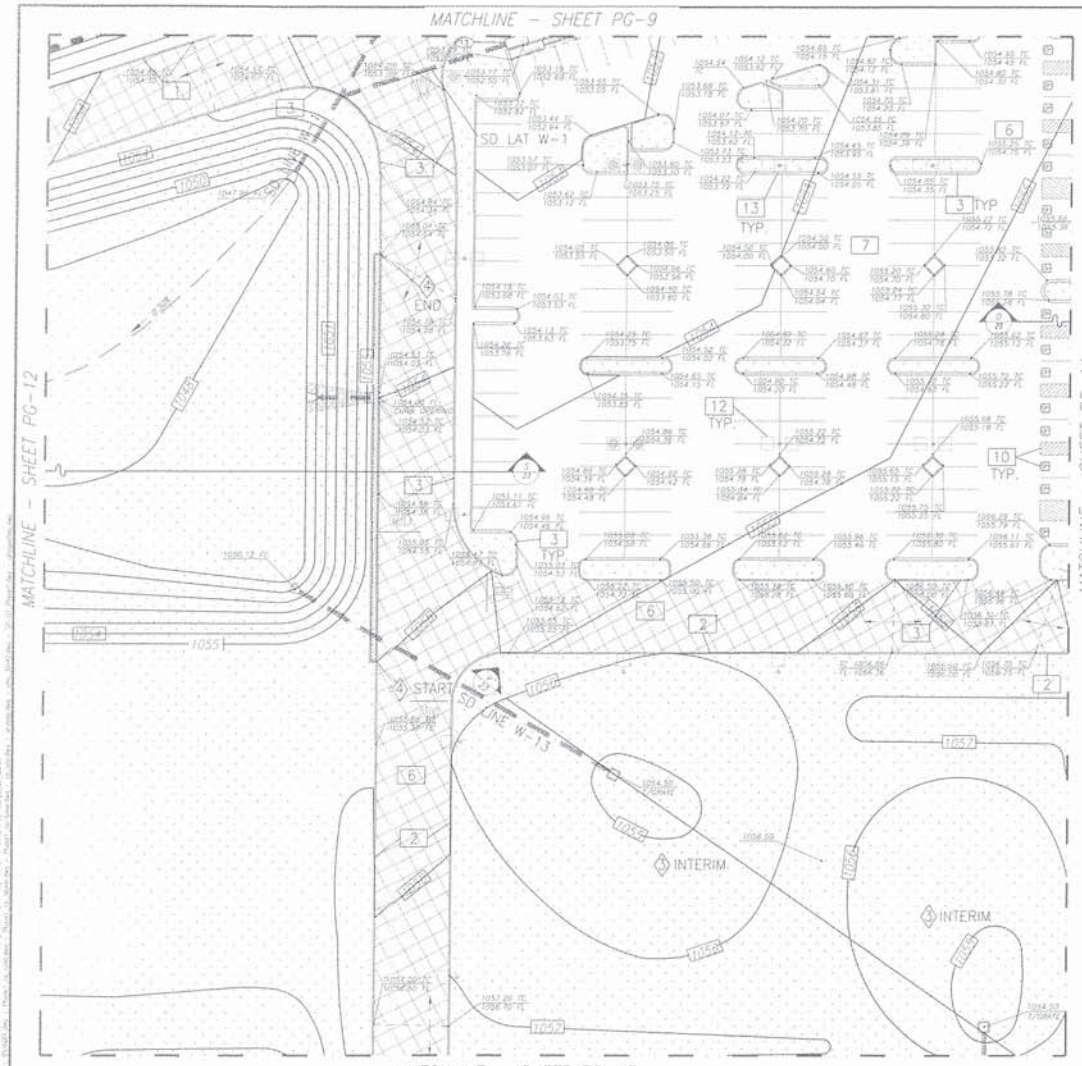
Plans Prepared Under Supervision Of:
MARGIE MARIE DE LAURELL
R.C.E. NO. C58448
DATE 8/8/11

RECOMMENDED BY: _____ DATE: _____
ACCEPTED BY: _____ DATE: _____
GREG BUTLER
DIRECTOR OF PUBLIC WORKS/CITY ENGINEER
R.C.E. NO. 47109

CITY OF TEMECULA DEPARTMENT OF PUBLIC WORKS

TEMECULA VALLEY HOSPITAL
PRECISE PAVING & GRADING PLAN
PM 32468/PA10-0194

Drawing No.
PG-12
Sheet 12 OF 52



CONSTRUCTION NOTES:

1. CONSTRUCT TYPE "A-6" CURB AND GUTTER PER CITY OF TEMECULA STANDARD No. 200. (SEE SHEET PG-20)
2. CONSTRUCT 6" AC CURB PER CITY OF TEMECULA STANDARD No. 214 (SEE SHEET PG-20)
3. CONSTRUCT D-6 CURB PER CITY OF TEMECULA STANDARD No. 204A. (SEE SHEET PG-20)
4. PROPOSED 4" ASPHALTIC CONCRETE PAVEMENT OVER 6" OF CLASS II AGGREGATE BASE (TRAFFIC INDEX RATING = 7.0)
5. PROPOSED 4" ASPHALTIC CONCRETE PAVEMENT OVER 4" OF CLASS II AGGREGATE BASE (TRAFFIC INDEX RATING = 4.5~6.0)
10. INSTALL PAINT MARKINGS PER ARCH. PLAN
11. INSTALL UNISIE LIGHTS – TYPE B FOR REFERENCE ONLY (SEE ELECTRICAL PLANS FOR DETAILS)
12. CONSTRUCT 6" PORTLAND CEMENT CONCRETE "LANDING STRIP"
3. CONSTRUCT VEGETATIVE SWALE (SEE LANDSCAPE PLANS)
4. CONSTRUCT SAND FILTER SWALE (SEE DETAIL PG-40)
13. INSTALL 7' CATCH BASIN NO. 1 PER RCFC & WCD (SEE SHEET PG-43)

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- SPOT ELEVATION (TOP OF CURB)
- SPOT ELEVATION (GUTTER)
- SPOT ELEVATION (FINISHED GRADE)
- TO BE CONSTRUCTED WITH STREET IMPROVEMENT PLANS.
- ONSITE LIGHTS – FOR REFERENCE ONLY (SEE ELECTRICAL PLANS FOR DETAILS)
- PROPOSED STORM DRAIN. (SEE SHTS. PG-29 THRU PG-39)
- SEE LANDSCAPE PLAN
- GRADE BREAK
- ADA ACCESSIBLE PATH (PER ARCH. PLAN)

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BUILDING AND SAFETY
REVIEWED FOR COMPLIANCE WITH TITLE 24 DISABLED ACCESS AND ACCESSIBILITY ONLY
APPROVED BY: _____ NAME _____ DATE

Client:
UHS
Universal Health Services, Inc
367 South Gulph Road
King of Prussia, PA 19406
T 610 768 3300

Architect of Record:
HMC Architects
HMC Architects
HMC Architects
HMC Architects

Civil Engineer:
URS

Design Build Partners:
Turner Construction Company
DPR Construction

Temecula Valley Hospital
Temecula, CA.

Agency Approval

HMC Project No. 2308.06

PLANS ISSUED FOR REVIEW ONLY

REVISION

LD10-019GR

REVISIONS TO APPROVED PLANS - 8/8/11

CONSTRUCTION RECORD	DATE	BY	REVISIONS	ACC'D DATE	BENCH MARK	SCALE	SEAL	Designed By	Drawn By	Checked By
Contractor					BENCHMARK: STAMPED ON 3-IN CUT BRASS DISK +/-65 FEET LOCATED 115 FEET SOUTHEAST OF CENTERLINE INTERSECTION OF MARGARITA ROAD AND RAINBOW CANYON ROAD	HORIZONTAL	PROGRESS PRINT THIS DOCUMENT ISN'T NOT BE USED FOR CONSTRUCTION RELEASED UNDER AUTHORITY OF MARGIE MARIE DE LAURELL, P.E. CALIFORNIA P.E. NO. 53449	SEL		MDL
Engineer					ELEVATION: 1,053.191 DATE: 9-10-93	VERTICAL		Plans Prepared Under Supervision Of		
Date Completed								MARGIE MARIE DE LAURELL	DATE 8/8/11	
								R.C.E. NO. C53449		

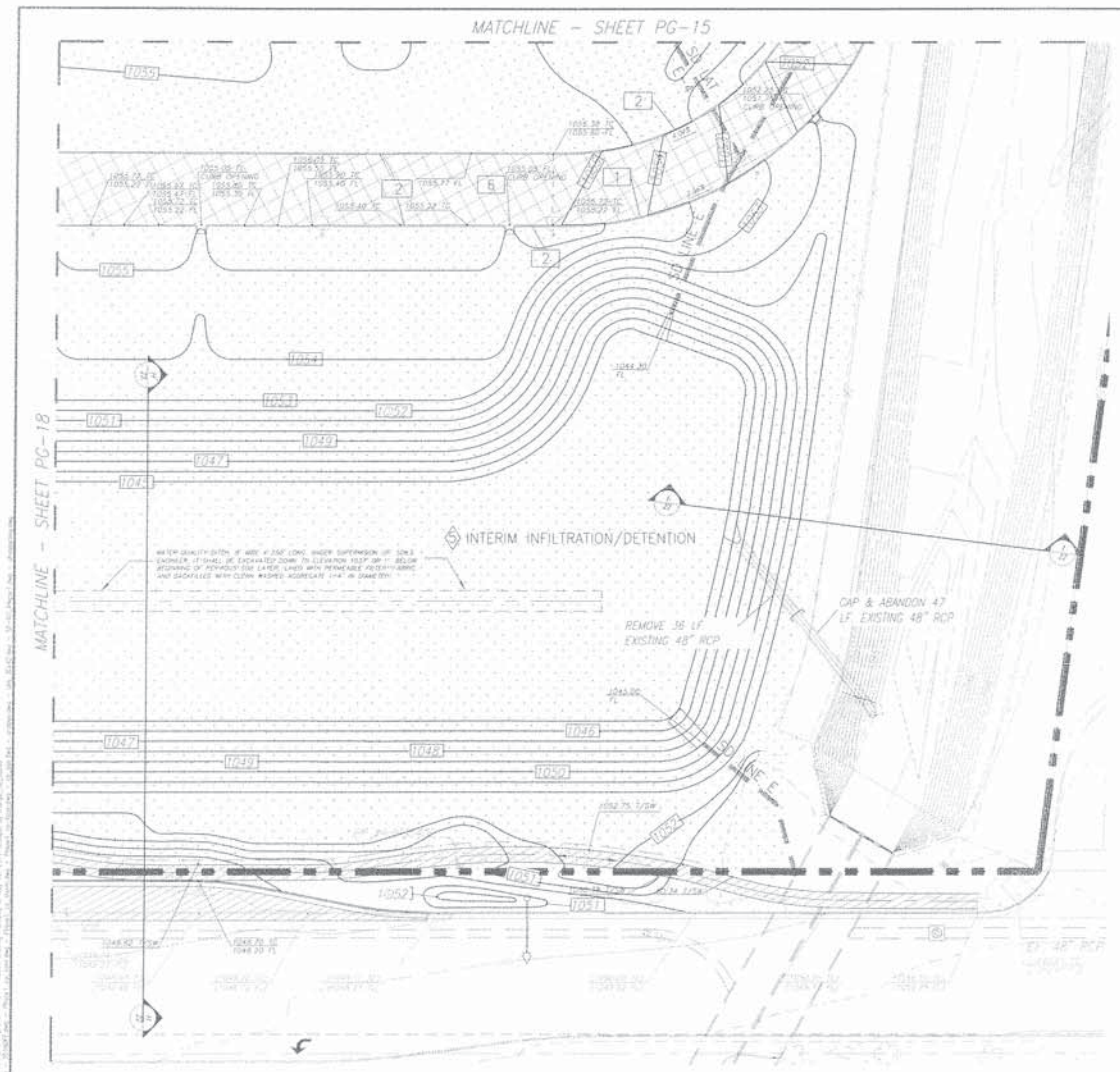
RECOMMENDED BY: _____ DATE: _____

ACCEPTED BY: _____ DATE: _____
GREG BUTLER
DIRECTOR OF PUBLIC WORKS/CITY ENGINEER
R.C.E. NO. 47109

CITY OF TEMECULA DEPARTMENT OF PUBLIC WORKS

TEMECULA VALLEY HOSPITAL
PRECISE PAVING & GRADING PLAN
PM 32468/PA10-0194

Drawing No.
PG-13
Sheet 13 of 50



CONSTRUCTION NOTES:

1. CONSTRUCT TYPE "A-4" CURB AND GUTTER PER CITY OF TEMECULA STANDARD No. 200 (SEE SHEET PG-35)
2. CONSTRUCT 6" AC CURB PER CITY OF TEMECULA STANDARD No. 214 (SEE SHEET PG-35)
3. PROPOSED 4" ASPHALTIC CONCRETE PAVEMENT OVER 6" OF CLASS 4 AGGREGATE BASE (TRAFFIC INDEX RATING = 7.0)
4. CONSTRUCT DETENTION/ELEMENT/ INFILTRATION BASIN (SEE LANDSCAPE PLANS)

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- SPOT ELEVATION (TOP OF CURB)
- SPOT ELEVATION (GUTTER)
- SPOT ELEVATION (FINISHED GRADE)
- TO BE CONSTRUCTED WITH STREET IMPROVEMENT PLANS
- ONSITE LIGHTS -- FOR REFERENCE ONLY (SEE ELECTRICAL PLANS FOR DETAILS)
- PROPOSED STORM DRAIN (SEE SHTS. PG-25 THRU PG-39)
- SEE LANDSCAPE PLAN
- GRADE BREAK
- ADA ACCESSIBLE PATH (PER ARCH. PLAN)

Can't Dig Until You Call U.S.A. Toll Free 1-800-227-2600

BUILDING AND SAFETY
REVIEWED FOR COMPLIANCE WITH TITLE 24 DISABLED ACCESS AND ACCESSIBILITY ONLY
APPROVED BY: _____ NAME _____ DATE

Client: UHS Universal Health Services, Inc
397 South Gulph Road
King of Prussia, PA 19406
T 610.768.3300

Architect of Record: HMC Architects
1010 Second Ave, Suite 300
Third Floor
San Diego, CA 92101
T 619.744.4001

Civil Engineer: URS
Two Stemmons Freeway
Suite 6200
Dallas, Texas 75207
(214) 761-2121
(214) 761-4413 Fax

Construction Manager: Turner Construction Company

DPR Construction, Inc.

Temecula Valley Hospital
Temecula, CA.

Agency Approvals

HMC Project No. 130806

Plans Submitted for Review Only

REVISIONS

LO10-0119GR

REVISIONS TO APPROVED PLANS - 8/8/11

CONSTRUCTION RECORD	DATE	BY	REVISIONS	ACCEPTED	DATE	BENCH MARK	SCALE
Contractor _____ Inspector _____ Date Completed _____						BM (TEMP): Chiseled "X" & "CC" brass disk in top of curb at back of curb on the east side of Ridgeline Drive, approximately 1,000 feet northerly from Via Vista Nueva, 1.5 miles south of Rancho Vista Road. ELEVATION: 1,002.457 DATE: 5-31-07	HORIZONTAL: VERTICAL:

PROGRESS PRINT
THIS DOCUMENT IS NOT FOR CONSTRUCTION. RELEASED UNDER AUTHORITY OF: MARGIE M DE LAURELL, P.E. CALIFORNIA P.E. #C49448

Designed By	Drawn By	Checked By
SEL		MDL

Plans Prepared Under Supervision Of
MARGIE MARIE DE LAURELL
R.C.E. NO. C49448
DATE 5/5/11

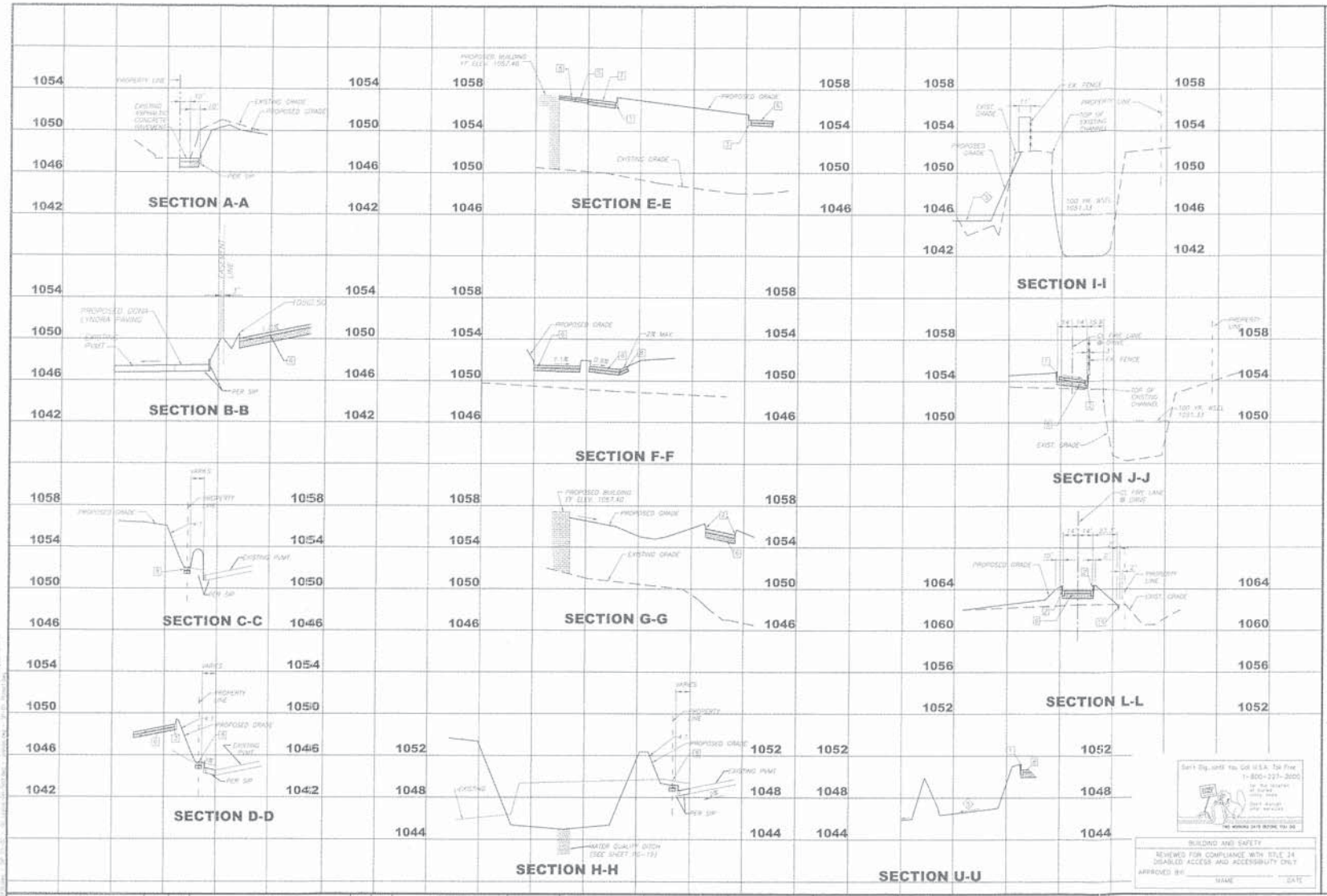
RECOMMENDED BY: _____ DATE: _____
GREG BUTLER
DIRECTOR OF PUBLIC WORKS/CITY ENGINEER
R.C.E. NO. 47109
ACCEPTED BY: _____ DATE: _____

CITY OF TEMECULA DEPARTMENT OF PUBLIC WORKS

TEMECULA VALLEY HOSPITAL
PRECISE PAVING & GRADING PLAN
PM 32468/PA10-0194

Drawing No. PG-19

Sheet 19 OF 32



REVISIONS TO APPROVED PLANS - 8/8/11

Client:
UHS
Universal Health Services, Inc
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King of Prussia, PA 19406
T 610 768 3300

Architect of Record:
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Civil Engineer:
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Design/Build Partners:
Turner Construction Company
DPR

Temecula Valley Hospital
Temecula, CA.

Agency Approval:
APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF TITLE 22 (OSHPD)

Office of Statewide Health Planning & Development
Facilities Development Division

OSHPD NO:

HMC Project No. 2308006

PLANS ISSUED FOR REVIEW ONLY

REVISION

LD10-019GR

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BUILDING AND SAFETY
REVIEWED FOR COMPLIANCE WITH TITLE 24 DISABLED ACCESS AND ACCESSIBILITY ONLY
APPROVED BY: _____ NAME _____ DATE

CONSTRUCTION RECORD	DATE	BY	REVISIONS	ACCEPTED DATE	BENCH MARK	SCALE	SEAL	Designed By	Drawn By	Checked By
Contractor					ELEVATION: 953.46' DATE: 5-10-82	HORIZONTAL 1"=40' VERTICAL 1"=4'	PROGRESS PRINT THIS DOCUMENT MAY NOT BE USED FOR CONSTRUCTION. RELEASED UNDER AUTHORITY OF: MARGIE M DE LAURELL P.E. CALIFORNIA P.E. #C-59448	VG		MDL

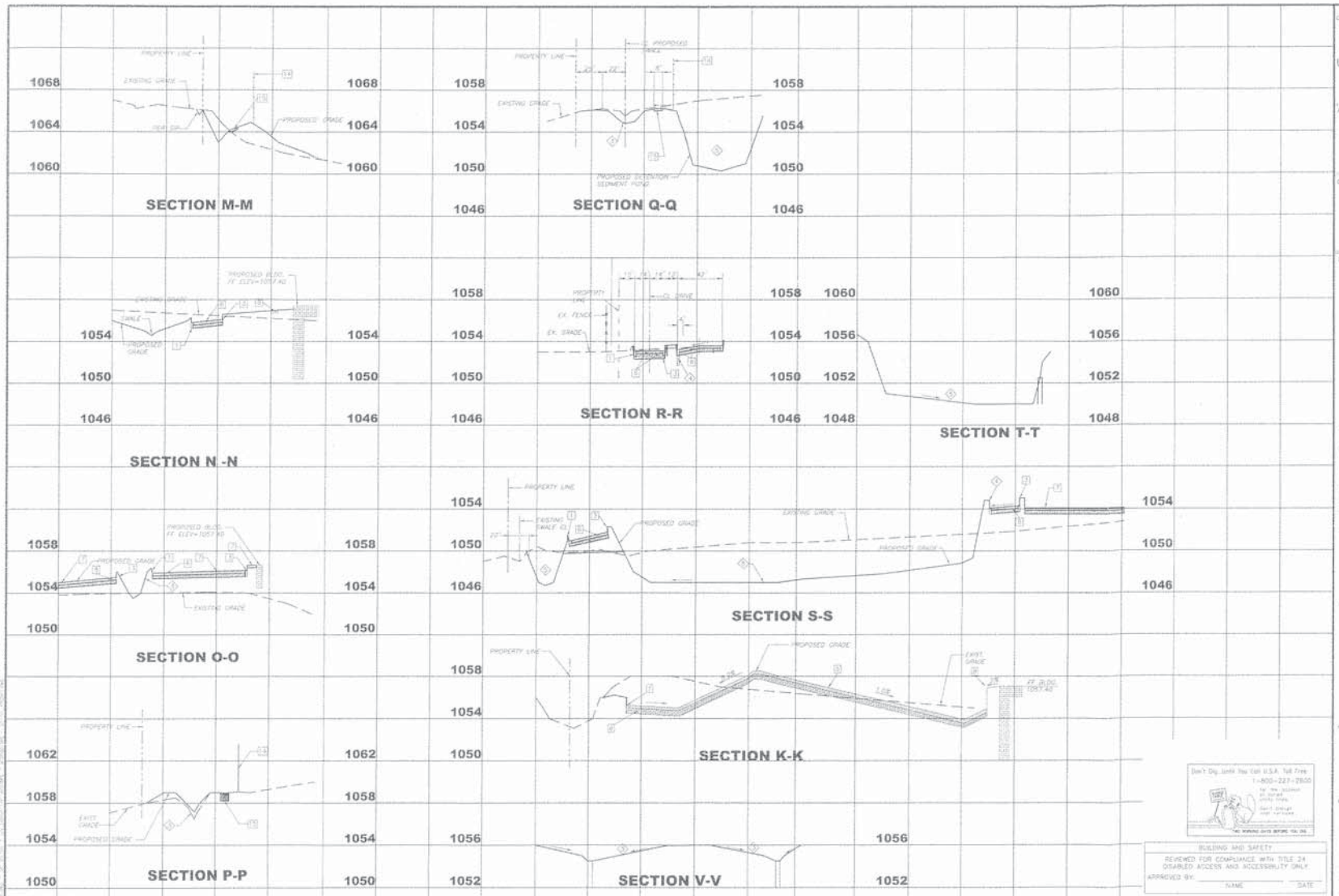
Plans Prepared Under Supervision Of:
MARGIE MARIE DE LAURELL
R.C.E. NO. C59448
DATE 8/8/11

RECOMMENDED BY: _____ DATE: _____
ACCEPTED BY: GREG BUTLER, DIRECTOR OF PUBLIC WORKS/CITY ENGINEER, R.C.E. NO. 47109 DATE: _____

CITY OF TEMECULA DEPARTMENT OF PUBLIC WORKS

TEMECULA VALLEY HOSPITAL
GRADING CROSS SECTIONS
PM 32468/PA10-0194

Drawing No. PG-22
Sheet 22 OF 53



Client:
UHS
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(214) 741-9413 Fax

Design/Build Partners:
Turner Construction Company
DPR Construction, Inc.

Temecula Valley Hospital
Temecula, CA.

Agency Approval:
REVIEWED IN ACCORDANCE WITH THE REQUIREMENTS OF TITLE 24 PART 1 AND 2
Office of Statewide Health Planning & Development Facilities Development Division

OSHPD NO.

HMC Project No: 230606

PLANS ISSUED FOR REVIEW ONLY

REVISION

LD10-019GR

REVISIONS TO APPROVED PLANS - 8/8/11

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TWO WORKING DAYS BEFORE YOU DIG

BUILDING AND SAFETY
REVIEWED FOR COMPLIANCE with TITLE 24 DISABLED ACCESS AND ADJOINABILITY ONLY
APPROVED BY: _____ NAME _____ DATE

CONSTRUCTION RECORD	DATE	BY	REVISIONS	ACCTD DATE	BENCH MARK	SCALE	SEAL	Designed By	Drawn By	Checked By
Contractor					BM=CCSD1 STAMPED CH 2 & 1/2" BRASS TOP A-62-10 LOCATED 0.2 MILES SOUTHEAST OF TOMECULA HIGH SCHOOL, 0.1 MILE EAST OF MURRIETA HOT SPRINGS ROAD, 0.1 MILE SOUTH OF PAUBA CANYON ROAD	HORIZONTAL 1"=40' VERTICAL 1"=4'	PROGRESS PRINT THIS DOCUMENT MAY NOT BE USED FOR CONSTRUCTION RELEASED UNDER AUTHORITY OF: MARGIE M DE LAURELL, P.E. CALIFORNIA P.E. #C-59448	SEL		MDL
Inspector					ELEVATION: 1,052.46' DATE: 4-25-95			Plans Prepared Under Supervision Of: MARGIE MARIE DE LAURELL R.C.E. NO. C59448 DATE: 8/8/11		
Date Completed										

RECOMMENDED BY: _____ DATE: _____
ACCEPTED BY: _____ DATE: _____
GREG BUTLER
DIRECTOR OF PUBLIC WORKS/CITY ENGINEER
R.C.E. NO. 47109

CITY OF TEMECULA DEPARTMENT OF PUBLIC WORKS

TEMECULA VALLEY HOSPITAL
GRADING CROSS SECTIONS
PM 32468/PA10-0194

Drawing No.: **PG-23**
Sheet 23 OF 52

Appendix C

Supporting Detail Related to Hydrologic Conditions of Concern

I. INTRODUCTION

The site for the **Temecula Medical Center** is located at 31415 Temecula Parkway in the City of Temecula, Riverside County, California along the north side of Temecula Parkway, south of De Portola Road, east of Dona Lynora Road and approximately 700 linear feet west of Margarita Road. See Appendix A for a vicinity map. This site is zoned for commercial use and contains approximately 35.85 acres of land. A portion of the site is in FEMA Zone X, see Section IVB below and Appendix B.

Existing Condition

This site is currently undeveloped and consists of tall grasses, small shrubs, a few trees and two drainage channels that convey runoff to a concrete-lined channel to the east. Approximately two-thirds of the project site flows to the east to the concrete-lined channel. The remaining one-third flows westerly either to the Rancho Pueblo/Dona Lynora intersection or to the existing 36" RCP in the northwestern corner of the site. Appendix F contains an existing condition hydrology map, which shows existing contours. Appendix G contains the existing condition hydrologic analyses for 100-year, 10-year, and 2-year storms.

There are several developments that surround the site. Adjacent to and west of the site is the Rancho Community Church (RCC) Campus and Bridgeport Development; hydrology and hydraulic information is included in Appendices N, O, and P. The channel is owned and maintained by Riverside County; hydrology analysis and as-built drawings are included in Appendices Q and R. To the north are single-family residences, to the east are office and commercial properties and to the south are commercial and single-family residences.

The area immediately north of the site was not included in the two other reports. URS performed hydrology analyses, which is included in Appendix T; the hydrology includes the proposed upgrade to De Portola Rd. This area drains to the site through two inlets in De Portola immediately east of Pio Pico Rd.

Ultimate Build Out

The ultimate buildout of the site will include an approximately 408,000 square foot, 2-tower hospital complex to contain 320 beds. The hospital will offer full in-patient and out-patient services, as well as emergency services. This facility will not contain a trauma unit. Two medical office buildings, one four (4) stories and 73 feet high and the second three (3) stories and 60 feet high, providing approximately 140,000 square feet of office space. Office space will be available for lease to all types of medical service providers. A 10,000 square foot cancer center and an 8,000 square foot fitness rehabilitation center will be housed in a one-story building on this site as well. An elevated helipad is proposed for this site as well. This site will also have approximately 1,278 surface parking spaces including 82 spaces for handicap parking.

The hospital will face Temecula Parkway and sit just to the east of the site center. The two medical office buildings will be situated to the west of the hospital, the cancer

treatment center will be situated to the east and the fitness center will be situated behind the hospital to the north. The helipad is proposed to be situated near the northeast corner of the hospital, north of the cancer center. A truck loading area and facilities plant will be located along the northern edge of the hospital. This area will provide the infrastructure required to support a hospital such as a loading dock, cooling tower, generators, transformers, fuel tank and bulk oxygen storage tank. A jogging and horse trail will be constructed along the northern edge of the property and will connect to an existing horse trail in the project vicinity.

Landscaping shall be provided in the form of berms and shrubs along the frontage of De Portola Drive and Temecula Parkway. Landscaping throughout the site shall be placed in parking islands, medians and around the hospital and medical office buildings.

There will be multiple Water Quality Management Plan Best Management Practices (WQMP BMPs) that are coordinated with the storm drain system. The BMPs include vegetative strips, bioswales, rain gardens to collect and treat roof runoff, and detention ponds. One of the BMPs used on this site will be an underground infiltration gallery in the southeast corner of the site. Most of the storm runoff from the easterly two-thirds of the site will flow to the infiltration gallery. During the water quality storm, the runoff will enter the gallery but during larger storms a concrete diversion box will divert flows to a 48-inch RCP, which ties into the existing 14'x7' RCB downstream of the County channel.

Appendix K contains the proposed ultimate condition hydrology and drainage map with proposed contours and 100-year storm peak discharges. Appendices L and M contains the proposed ultimate condition hydrology analyses for the 100-year, 10-year and 2-year storms. Appendix S includes hydraulic analysis for the tie-in to the existing RCB downstream of the County channel; this is the only hydraulic analysis completed for the ultimate condition for review and approval by Riverside County.

Phase 1

Phase 1 will consist of the hospital tower only, which is a 177,500 square foot 140-bed facility with emergency department, loading dock, mechanical infrastructure,helipad, and only a portion of the parking. See the proposed hydrology map in Appendix H or the precise grading plans in Appendix U for more information. The portion of the site not being developed in phase 1 will be landscaped with hydroseed and wild flowers. There will also be the same bioswales, vegetative strips and rain gardens as in the ultimate condition. The areas without development will contain large detention/sedimentation ponds as seen in the grading plans. The largest pond is the most downstream portion of the easterly drainage areas and it's located in the southeast corner of the site. This pond ties into the existing 14'x7' RCB downstream of the County channel. The other two ponds are located north and west of the phase 1 development.

Appendix H contains the proposed Phase 1 condition hydrology and drainage map with proposed contours and 100-year storm peak discharges. Appendices I and J contains

the proposed Phase 1 hydrology analyses for the 100-year, 10-year and 2-year storms. Appendix S contains hydraulic analyses for Phase 1 storm drains.

Phase 1 of this project will also include off-site improvements to Temecula Parkway, De Portola Road and Dona Lynora Road. Improvements to Temecula Parkway will include the construction of a west bound right turn lane into the site and a Riverside Transit Authority bus turn-in lane along the north side of the road. There will also be some modifications to existing traffic signals located at Temecula Parkway/County Glen Way and Temecula Parkway/Margarita Road/Redbird intersections. Construction activity for Dona Lynora will include the removal of the crown in the Dona Lynora/Rancho Pueblo intersection and completion of the existing northbound drive lane with curb and gutter and the east-to-west cross-gutter..

Improvements to De Portola Road will include the construction of a half-street and depressed median using a cross section of a modified secondary arterial (4 lane separated). The existing culvert in De Portola Rd near Pio Pico Rd will be extended, an inlet added on the south side of the street and the resultant flows will be conveyed in a RCP through the site and into the County channel. The existing box culvert approximately 80 feet east of the project property line will also be extended to allow for widening of De Portola Rd.

II. PURPOSE

The purpose of this drainage report is to analyze the existing and proposed hydrology of the hospital site. This study will also determine the developed condition, 100-year peak runoff values at various points within the Temecula Medical Center site to support the design of an on-site storm drainage system and will determine the allowable runoff into existing storm drain systems. This study will also show that the previously improved existing channels that will be receiving discharge from the on-site storm drain system were designed to handle the developed condition, 100-year peak flow from the Temecula Medical Center site. This report will compare proposed, developed conditions to the following reports prepared by others that show the Temecula Medical Center site was accounted for in the design of down stream facilities:

- Drainage Report – Hydrology and Hydraulics Study of Storm Drain through Rancho Community Church Campus (RCCC) and Bridgeport Development to Temecula Parkway and Jedediah Smith Road, Prepared by Temecula Engineering Consultants, Inc. (TEC) in May 2004. Portions of this report and its update are included in Appendices N and P.

- Drainage Study – Rancho Villages Assessment, District No. 159, Hydrology and Hydraulic Calculations for Ultimate Conditions for Line "V", Prepared by RANPAC Engineering Corporation in February 1983. Portions of this report are included in Appendices Q and R.

III. METHODOLOGY

This drainage analysis has utilized the Riverside County Flood Control and Water Conservation District (RCFC & WCD) Hydrology Manual; see Appendices C, D, and E for portions of the County data used in performing the analyses. The Rational Method will be used to determine discharges as the watershed is less than 500 acres of land. The proposed storm drain system is designed to carry flows for the 100-year storm event.

The existing and proposed hydrology of the site has been analyzed using the, "Water Surface Pressure Gradient Package", Version 6.0, licensed by CIVILDESIGN Corporation.

The storm drain hydraulics has also been analyzed using WSPGN software, Version 12.5.

IV. DRAINAGE

A. Existing Watersheds

West Side

The Temecula Medical Center site is situated in the Santa Margarita Watershed. Temecula Creek, a sub-watershed of the Santa Margarita Watershed, will be the receiving body of water for all storm water runoff for this site. The creek is located approximately 1000 feet south of the property.

The hospital site is situated at a natural highpoint within this watershed which causes approximately one third of the runoff from the site to drain to the west and the remainder of the runoff to drain to the east. Runoff from the site will drain into two independent drainage systems and enter Temecula Creek at two different locations. The westerly runoff will enter Temecula Creek down stream of the easterly run off.

The western portion of the site naturally drains into an existing open channel located at the northwest corner of the site. This channel is considered trapezoidal and has a three (3') foot bottom with 1.5:1 side slopes and a Manning's n of 0.03, which was assumed for vegetative growth. This channel remains open for approximately six (6) feet and then enters an enclosed storm drain system which travels west, along the northern boundary of the RCCC site. This storm drain system begins with a headwall and 36" diameter RC pipe. The pipe continues west, increasing in diameter, for approximately 2500 feet, where another headwall was constructed as an outfall and is the commencement point of a new channel. This channel is a trapezoidal channel with 2:1 side slopes and a bottom of four (4') feet. A manning's n of 0.03 was assumed to allow for vegetation growth. This channel extends for approximately 1800 feet where it flows into a box culvert at Jedediah Smith Road & Temecula Parkway, and discharges into Temecula Creek.

This existing storm drain system located on the RCC site is contained within a 16' drainage easement and is publically maintained.

The western watershed was previously analyzed in a hydrology report completed by Temecula Engineering Consultants, Inc. (TEC) for the Rancho Community Church (RCC) site, located adjacent to and west of, the subject site in December, 2001. This existing drainage study determined the developed condition, 100-year peak runoff values at certain points within the RCC site. This study also accounted for developed condition, 100-year peak runoff entering the RCC site from the subject site. Approximately 12.6 acres of the hospital land was included in this study. Using a Soil type of C, a commercial development type, and a time of concentration of 21.57 minutes, the developed condition Q_{100} value was determined by TEC to be 26.10 cfs. See Appendices N, O, and P for portions of these westerly area drainage studies.

East Side

The eastern drainage area of this site is divided into two subareas that naturally drain into two independent existing open channels. These open channels each contain an existing reinforced concrete pipe that conveys water from these open channels and into a RCFCD maintained channel. This channel has 3:1 side slopes, an earthen bottom, approximately 30 feet wide and concrete lined side slopes.

The eastern portion of the site was included in an analysis for a drainage study completed by RANPAC Engineering Corporation, herein "RANPAC", for Rancho Villages Assessment, District No. 159 in March, 1992, revised in February, 1993. This existing drainage study determined developed condition, 100-year peak runoff rates for storm drain improvements from the north side of Temecula Parkway, 740 linear feet west of Margarita Road, south, toward Temecula Creek. This existing study was part of the storm drain system for the approved master drainage study tributary to the Temecula Creek Channel. This existing study also accounted for developed condition, 100-year peak runoff entering the existing, unnamed trapezoidal channel along the eastern edge of the property from the subject site. Approximately 19.3 acres of the hospital land was included in this study. Using a Soil type of C, a commercial development type, and a time of concentration of 20.07 minutes, the developed condition Q_{100} value was determined by RANPAC to be 63.59 cfs.

This hydrology analysis was prepared using a rational method computer program, copyright by Civil CADD/Civil Design Engineering Software, 1990, version 3.1. Rainfall intensities and soil type values were obtained from RCFCD Hydrology Manual.

An encroachment permit will be required from RCFCD for the proposed connections to this channel.

There are also some off-site flows from portions of De Portola Road and the northerly residential development that were not considered in either one of the above mentioned reports. Refer to the map and calculations for this drainage area in Appendix T. There is an approximate 8-acre drainage area that flows to the existing grated inlet and concrete flume located near the northwest corner of site approximately 50 feet east of the Pio Pico/De Portola Road intersection. Some street flows are also picked up by these structures. From the concrete flume, the flow is conveyed in an onsite drainage swale and eventually drains to the RCFCD channel in the southeast corner of the site.

B. Floodplain

This project site is located in Zone "X" of the Flood Insurance Rate Map (FIRM) produced by the Federal Emergency Management Agency (FEMA). It is shown on community panel number 06065C 3305G, revised on August 28, 2008, for the City of Temecula, California, Riverside County. (See Appendix B.)

Zone "X" includes areas of 500-year flood; areas of 100-year flood with average depths of less than one (1) foot or with drainage areas less than one (1) square mile; and areas protected by levees from the 100-year flood. This site is not located in the 100-year floodplain.

C. Proposed Drainage Patterns

This site is to consist of buildings, paved parking lots, concrete curb and gutter, and some vegetated landscaped areas. Commercial land use generally has an impervious cover between 80 and 100 percent. This site will maintain the existing highpoint where flow will break and be diverted to the west and to the east.

Drainage for this site shall be designed based on ultimate developed condition 100-year storm. However, since Phase 1 will be constructed first, Phase 1 condition 100-year storm was also considered. Results for both conditions are included in the Appendices. H, I, J, K, L, and M.

The eastern runoff generated for this development will be contained within the site and conveyed to the existing RCB downstream of the County channel by overland flow and pipe conveyance. Site flows will run toward a combination of curb inlets and grate inlets placed at various low points within the property. These inlets will be sized to handle the 100-year storm event. During ultimate conditions, the pipes connecting these inlets will flow to the underground infiltration gallery; during phase 1 the pipes will flow to a large detention/sedimentation pond. Both the infiltration gallery and the large pond will tie into the existing RCB downstream of the County channel. The pipe system will be designed to contain the 100-year storm event.

The offsite flows (total 8.44 acres) from De Portola Rd (0.25 acre) and northerly residential areas (8.19 acres) will be conveyed in the existing 24" RCP that crosses De Portola Rd. An inlet will be added on the south side of De Portola and the runoff will be conveyed by an onsite 24" RCP to an existing 24" RCP located in the northern portion of the existing County channel. The peak discharges for the 100-, 10-, and 2-year storms are 16.7, 10.9, and 6.8 cfs, respectively.

The runoff generated by most of the western section of the site will flow overland via curb cut-outs, inlets, pipes, and ponds until it reaches a concrete lined channel with head wall and pipe that conveys water to the west and then along the northern property line of the adjacent property. In both ultimate and phase 1 conditions there is a proposed detention pond in the northwestern corner of the site. The ultimate buildout calls for four additional detention ponds upstream. Phase 1 proposes a single large detention/sediment pond. This flow will end up in a system that drains across Temecula Parkway at Jedediah Smith Road.

Runoff from a small area of the southwest corner of the site plus a portion of Dona Lynora flows to the cross-gutter ar Rancho Pueblo and then continues east. Ultimate condition Q100, Q10, Q2 = 2.4, 1.6, 1.1 and phase 1 Q's are 2.1, 1.4, 0.9 cfs.

D. Drainage Area Characteristics

Time of concentration is a function of many variables including the length of flow path from the most remote point of an area to the concentration point, the slope, the infiltration characteristic of the soil and the type of development. The time of concentration is defined as the time required to reach the maximum or equilibrium runoff state.

The existing time of concentrations for this project site were considered from Drainage Studies completed by RANPAC and TEC.

A proposed time of concentration was calculated for each drainage area within the proposed development. The initial time of concentration for each sub area was estimated using the nomograph in the RCFC & WCD Manual. The initial time of concentration for the sub area was added to the time it took to get from the initial point of concentration to either the first inlet in that sub area or to the next downstream concentration point. This was done for each drainage area and a cumulative sum was derived to determine the total time of concentration.

Rainfall intensity, I-value, for this area was determined using District intensity-duration curves for the Murrieta, Temecula and Rancho California region. The 2-, 10- and 100-year storm frequencies were used for design along with the individual time of concentration for each drainage area.

The RCFC & WCD Manual identifies that the soil type for this project area ranges from B to BC. The dual soil designation indicates that the "infiltration characteristics are too variable either geographically or with time". Therefore, the most conservative value of Group C was used for this report. Land use characteristics for existing conditions were noted as agricultural, pasture dry lands in fair condition. The runoff index (RI) number for existing conditions was 79. Land use for proposed site conditions were noted as commercial, with an impervious area between 80 and 100 percent. The RI number for proposed conditions was 89 for most sub-hydrologic areas. This was found using urban covers for commercial landscaping.

The coefficient of runoff, C-value, is used to account for factors such as rainfall intensity, soil type and cover, pervious and impervious area and terrain conditions. A runoff coefficient was calculated for each drainage sub area using the soil type, runoff index number, percent impervious and rainfall intensity.

V. CONCLUSION

In conclusion, it has been determined that ultimate 100-year developed conditions have been accounted for in the drainage studies by RANPAC and TEC for this area. This will allow for developed flows from the subject site to flow freely into the existing drainage facilities provided to both the east and the west and not exceed the design capacity provided for these facilities. This site will not require on-site detention except that required for water quality.

Runoff values generated for the proposed site drainage area map closely reflect the total flows calculated in the previous drainage reports. Any variation in the numbers was insignificant.

	2-YR & 10-YR STORM EVENT – WEST WATERSHED					
	2-YEAR		10-YEAR			
	Pre-Development (URS Study)	Ult/Ph 1 Development (URS Study)	Pre-Development (URS Study)	Pre-Development (TEC Study)	Post Development (TEC Study)	Ult/Ph 1 Development (URS Study)
Q (cfs)	8.18	12.6/10.2	13.99	13.00	17.07	19.1/16.1
Velocity (ft/sec)	1.83	1.90/2.08	2.06	1.75	3.10	2.20/2.43
Area (acre)	10.55	8.78/8.77	10.55	11.11	12.60	8.78/8.77
Duration (minutes)	16.59	12.06/16.88	16.59	20.73	22.06	11.64/15.53

	2-YR & 10-YR STORM EVENT – EAST WATERSHED			
	2-YEAR		10-YEAR	
	Pre-Development (URS Study)	Ult/Ph 1 Development (URS Study)	Pre-Development (URS Study)	Ult/Ph 1 Development (URS Study)
Q (cfs)	18.45	23.7/20.5	31.49	35.9/31.9
Velocity (ft/sec)	3.53	2.90/-	4.01	3.16/-
Area (acre)	24.67	24.02/23.69	24.67	24.02/23.69
Duration (minutes)	21.56	10.96/20.87	21.33	10.56/20.40

	100-YR STORM EVENT – WEST WATERSHED				
	Pre-Development (TEC Study)	Pre-Development (URS Study)	Post Development (TEC Study)	Updated Post Development (TEC Study)	Ult/Ph 1 Development (URS Study)
Q (cfs)	20.95	21.09	26.10	20.70	28.6/24.8
Velocity (ft/sec)	1.98	2.28	3.48	3.10	2.51/2.80
Area (acre)	11.11	10.55	12.60	10.60	8.78/8.77
Duration (minutes)	20.20	16.59	21.57	22.00	11.22/14.44

	100-YEAR STORM EVENT – EAST WATERSHED			
	Pre-Development (RANPAC)	Pre-Development (URS Study)	Post Development (RANPAC)	Ult/Ph 1 Development (URS Study)
Q (cfs)	60.27	47.93	63.59	53.1/48.2
Velocity (ft/sec)	13.65	4.43	7.77	4.23/3.84
Area (acre)	23.30	24.67	23.80	24.02/23.69
Duration (minutes)	14.14	21.17	20.07	10.15/20.25

```
                Riverside County Rational Hydrology Program

     CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 1999 Version 6.0
          Rational Hydrology Study        Date: 12/21/07
File:Existing100.out
-------------------------------------------------------------------------
 *********  Hydrology Study Control Information **********

 English (in-lb) Units used in input data file

-------------------------------------------------------------------------
FOR OFFICIAL USE ONLY - CALTRANS San Bernardino - S/N 661
-------------------------------------------------------------------------
Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) =  100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [ Murrieta,Tmc,Rnch CaNorco ] area used.
10 year storm 10 minute intensity =  2.360(In/Hr)
10 year storm 60 minute intensity =  0.880(In/Hr)
100 year storm 10 minute intensity =  3.480(In/Hr)
100 year storm 60 minute intensity =  1.300(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity =  1.300(In/Hr)
Slope of intensity duration curve = 0.5500



++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        1.000 to Point/Station        2.000
**** INITIAL AREA EVALUATION ****
--------------------------------------------------------------------------
Initial area flow distance =   920.000(Ft.)
Top (of initial area) elevation =  1058.100(Ft.)
Bottom (of initial area) elevation =  1047.000(Ft.)
Difference in elevation =    11.100(Ft.)
Slope =    0.01207  s(percent)=       1.21
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   19.655 min.
Rainfall intensity =      2.402(In/Hr) for a   100.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.825
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  86.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =     17.801(CFS)
Total initial stream area =        8.980(Ac.)
Pervious area fraction = 1.000
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        2.000 to Point/Station        3.000
**** NATURAL CHANNEL TIME + SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Top of natural channel elevation =   1047.000(Ft.)
End of natural channel elevation =   1042.500(Ft.)
Length of natural channel  =   355.000(Ft.)
Estimated mean flow rate at midpoint of channel =     24.234(CFS)

Natural valley channel type used
L.A. County flood control district formula for channel velocity:
 Velocity(ft/s) = (7 + 8(q(English Units)^.352)(slope^0.5)
Velocity using mean channel flow =   3.55(Ft/s)

Correction to map slope used on extremely rugged channels with
drops and waterfalls (Plate D-6.2)
      Normal channel slope =  0.0127
Corrected/adjusted channel slope =  0.0127
Travel time =    1.66 min.     TC =   21.32  min.


 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.822
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  86.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Rainfall intensity =     2.297(In/Hr) for a   100.0 year storm
Subarea runoff =     12.256(CFS) for     6.490(Ac.)
Total runoff =     30.058(CFS)      Total area =     15.470(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        1.000 to Point/Station        3.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 1
Stream flow area =     15.470(Ac.)
Runoff from this stream =     30.058(CFS)
Time of concentration =   21.32 min.
Rainfall intensity =     2.297(In/Hr)
Summary of stream data:

Stream   Flow rate      TC              Rainfall Intensity
 No.       (CFS)       (min)                  (In/Hr)


1       30.058     21.32                 2.297
Largest stream flow has longer time of concentration
Qp =     30.058 + sum of
Qp =     30.058

Total of 1 streams to confluence:
Flow rates before confluence point:
      30.058
Area of streams before confluence:
       15.470
Results of confluence:
```

```
Total flow rate =      30.058(CFS)
Time of concentration =     21.320 min.
Effective stream area after confluence =      15.470(Ac.)


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Process from Point/Station        4.000 to Point/Station        5.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
Initial area flow distance =   990.000(Ft.)
Top (of initial area) elevation =  1058.100(Ft.)
Bottom (of initial area) elevation =  1045.500(Ft.)
Difference in elevation =    12.600(Ft.)
Slope =    0.01273  s(percent)=       1.27
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   20.025 min.
Rainfall intensity =      2.377(In/Hr) for a   100.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.825
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  86.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =      5.764(CFS)
Total initial stream area =       2.940(Ac.)
Pervious area fraction = 1.000


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Process from Point/Station        4.000 to Point/Station        5.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      2.940(Ac.)
Runoff from this stream =      5.764(CFS)
Time of concentration =   20.03 min.
Rainfall intensity =     2.377(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)


1        5.764     20.03                  2.377
Largest stream flow has longer time of concentration
Qp =      5.764 + sum of
Qp =      5.764

Total of 1 streams to confluence:
Flow rates before confluence point:
       5.764
Area of streams before confluence:
       2.940
Results of confluence:
Total flow rate =      5.764(CFS)
Time of concentration =    20.025 min.
Effective stream area after confluence =      2.940(Ac.)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        6.000 to Point/Station        7.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
Initial area flow distance =   695.000(Ft.)
Top (of initial area) elevation =  1056.000(Ft.)
Bottom (of initial area) elevation =  1051.300(Ft.)
Difference in elevation =     4.700(Ft.)
Slope =    0.00676  s(percent)=       0.68
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   19.726 min.
Rainfall intensity =      2.397(In/Hr) for a   100.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.825
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  86.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =      4.451(CFS)
Total initial stream area =         2.250(Ac.)
Pervious area fraction = 1.000


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        7.000 to Point/Station        8.000
**** NATURAL CHANNEL TIME + SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Top of natural channel elevation =   1051.300(Ft.)
End of natural channel elevation =   1047.000(Ft.)
Length of natural channel  =   400.000(Ft.)
Estimated mean flow rate at midpoint of channel =      5.905(CFS)

Natural valley channel type used
L.A. County flood control district formula for channel velocity:
 Velocity(ft/s) = (7 + 8(q(English Units)^.352)(slope^0.5)
Velocity using mean channel flow =   2.28(Ft/s)

Correction to map slope used on extremely rugged channels with
drops and waterfalls (Plate D-6.2)
     Normal channel slope =  0.0107
Corrected/adjusted channel slope =  0.0107
Travel time =    2.93 min.     TC =   22.66  min.


 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.820
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  86.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Rainfall intensity =      2.221(In/Hr) for a   100.0 year storm
Subarea runoff =      2.677(CFS) for      1.470(Ac.)
Total runoff =      7.128(CFS)      Total area =      3.720(Ac.)


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Process from Point/Station        6.000 to Point/Station        8.000
**** CONFLUENCE OF MINOR STREAMS ****
----------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      3.720(Ac.)
Runoff from this stream =      7.128(CFS)
Time of concentration =   22.66 min.
Rainfall intensity =     2.221(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)


1        7.128     22.66                  2.221
Largest stream flow has longer time of concentration
Qp =      7.128 + sum of
Qp =      7.128

Total of 1 streams to confluence:
Flow rates before confluence point:
       7.128
Area of streams before confluence:
        3.720
Results of confluence:
Total flow rate =      7.128(CFS)
Time of concentration =    22.656 min.
Effective stream area after confluence =      3.720(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        9.000 to Point/Station        8.000
**** INITIAL AREA EVALUATION ****
----------------------------------------------------------------------
Initial area flow distance =   571.000(Ft.)
Top (of initial area) elevation =  1053.200(Ft.)
Bottom (of initial area) elevation =  1047.000(Ft.)
Difference in elevation =     6.200(Ft.)
Slope =    0.01086  s(percent)=       1.09
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   16.587 min.
Rainfall intensity =      2.637(In/Hr) for a   100.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.832
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  86.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =      6.621(CFS)
Total initial stream area =       3.020(Ac.)
Pervious area fraction = 1.000


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Process from Point/Station        9.000 to Point/Station        8.000
**** CONFLUENCE OF MINOR STREAMS ****
----------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      3.020(Ac.)
```

```
Runoff from this stream =      6.621(CFS)
Time of concentration =   16.59 min.
Rainfall intensity =     2.637(In/Hr)
Summary of stream data:

Stream   Flow rate       TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)


1        6.621     16.59                  2.637
Largest stream flow has longer time of concentration
Qp =      6.621 + sum of
Qp =      6.621

Total of 1 streams to confluence:
Flow rates before confluence point:
      6.621
Area of streams before confluence:
      3.020
Results of confluence:
Total flow rate =      6.621(CFS)
Time of concentration =    16.587 min.
Effective stream area after confluence =      3.020(Ac.)


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Process from Point/Station        9.000 to Point/Station       10.000
**** INITIAL AREA EVALUATION ****
----------------------------------------------------------------------------
Initial area flow distance =   405.000(Ft.)
Top (of initial area) elevation =  1053.200(Ft.)
Bottom (of initial area) elevation =  1050.000(Ft.)
Difference in elevation =     3.200(Ft.)
Slope =    0.00790  s(percent)=       0.79
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   15.407 min.
Rainfall intensity =      2.746(In/Hr) for a   100.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.834
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)   =  86.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =      1.993(CFS)
Total initial stream area =       0.870(Ac.)
Pervious area fraction = 1.000


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Process from Point/Station        9.000 to Point/Station       10.000
**** CONFLUENCE OF MINOR STREAMS ****
----------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 1
Stream flow area =     0.870(Ac.)
Runoff from this stream =      1.993(CFS)
Time of concentration =   15.41 min.
Rainfall intensity =     2.746(In/Hr)
Summary of stream data:
```

```
Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)               (In/Hr)

1        1.993     15.41                  2.746
Largest stream flow has longer time of concentration
Qp =      1.993 + sum of
Qp =      1.993

Total of 1 streams to confluence:
Flow rates before confluence point:
       1.993
Area of streams before confluence:
        0.870
Results of confluence:
Total flow rate =      1.993(CFS)
Time of concentration =    15.407 min.
Effective stream area after confluence =      0.870(Ac.)


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Process from Point/Station       11.000 to Point/Station       12.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
Initial area flow distance =   995.000(Ft.)
Top (of initial area) elevation =  1068.000(Ft.)
Bottom (of initial area) elevation =  1054.000(Ft.)
Difference in elevation =    14.000(Ft.)
Slope =    0.01407  s(percent)=       1.41
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   19.667 min.
Rainfall intensity =      2.401(In/Hr) for a   100.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.825
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  86.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =      7.590(CFS)
Total initial stream area =        3.830(Ac.)
Pervious area fraction = 1.000


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       12.000 to Point/Station       13.000
**** NATURAL CHANNEL TIME + SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Top of natural channel elevation =   1054.000(Ft.)
End of natural channel elevation =   1052.000(Ft.)
Length of natural channel  =   155.000(Ft.)
Estimated mean flow rate at midpoint of channel =     10.423(CFS)

Natural valley channel type used
L.A. County flood control district formula for channel velocity:
 Velocity(ft/s) = (7 + 8(q(English Units)^.352)(slope^0.5)
Velocity using mean channel flow =   2.87(Ft/s)

Correction to map slope used on extremely rugged channels with
drops and waterfalls (Plate D-6.2)
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```
      Normal channel slope =  0.0129
Corrected/adjusted channel slope =  0.0129
Travel time =    0.90 min.     TC =   20.57  min.


 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.824
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)   =  86.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Rainfall intensity =      2.342(In/Hr) for a   100.0 year storm
Subarea runoff =      5.518(CFS) for      2.860(Ac.)
Total runoff =     13.108(CFS)      Total area =       6.690(Ac.)


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Process from Point/Station       13.000 to Point/Station       14.000
**** NATURAL CHANNEL TIME + SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Top of natural channel elevation =   1052.000(Ft.)
End of natural channel elevation =   1048.000(Ft.)
Length of natural channel  =   160.000(Ft.)
Estimated mean flow rate at midpoint of channel =    15.567(CFS)

Natural valley channel type used
L.A. County flood control district formula for channel velocity:
 Velocity(ft/s) = (7 + 8(q(English Units)^.352)(slope^0.5)
Velocity using mean channel flow =   4.43(Ft/s)

Correction to map slope used on extremely rugged channels with
drops and waterfalls (Plate D-6.2)
      Normal channel slope =  0.0250
Corrected/adjusted channel slope =  0.0250
Travel time =    0.60 min.     TC =   21.17  min.


 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.823
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)   =  86.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Rainfall intensity =      2.306(In/Hr) for a   100.0 year storm
Subarea runoff =      4.760(CFS) for      2.510(Ac.)
Total runoff =     17.868(CFS)      Total area =       9.200(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       11.000 to Point/Station       14.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      9.200(Ac.)
Runoff from this stream =     17.868(CFS)
```

Time of concentration = 21.17 min.
Rainfall intensity = 2.306(In/Hr)
Summary of stream data:

Stream No.	Flow rate (CFS)	TC (min)	Rainfall Intensity (In/Hr)
1	17.868	21.17	2.306

Largest stream flow has longer time of concentration
Qp = 17.868 + sum of
Qp = 17.868

Total of 1 streams to confluence:
Flow rates before confluence point:
17.868
Area of streams before confluence:
9.200
Results of confluence:
Total flow rate = 17.868(CFS)
Time of concentration = 21.169 min.
Effective stream area after confluence = 9.200(Ac.)
End of computations, total study area = 35.220 (Ac.)

```
                    Riverside County Rational Hydrology Program

      CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 1999 Version 6.0
            Rational Hydrology Study        Date: 12/21/07
File:Existing10.out
      ---------------------------------------------------------------------
       *********   Hydrology Study Control Information **********

       English (in-lb) Units used in input data file

      ---------------------------------------------------------------------
      FOR OFFICIAL USE ONLY - CALTRANS San Bernardino - S/N 661
      ---------------------------------------------------------------------
      Rational Method Hydrology Program based on
      Riverside County Flood Control & Water Conservation District
      1978 hydrology manual

      Storm event (year) =   10.00 Antecedent Moisture Condition = 2

      Standard intensity-duration curves data (Plate D-4.1)
      For the [ Murrieta,Tmc,Rnch CaNorco ] area used.
      10 year storm 10 minute intensity =  2.360(In/Hr)
      10 year storm 60 minute intensity =  0.880(In/Hr)
      100 year storm 10 minute intensity =  3.480(In/Hr)
      100 year storm 60 minute intensity =  1.300(In/Hr)

      Storm event year =  10.0
      Calculated rainfall intensity data:
      1 hour intensity =  0.880(In/Hr)
      Slope of intensity duration curve = 0.5500


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      Process from Point/Station        1.000 to Point/Station        2.000
      **** INITIAL AREA EVALUATION ****
      ------------------------------------------------------------------------
      Initial area flow distance =   920.000(Ft.)
      Top (of initial area) elevation =  1058.100(Ft.)
      Bottom (of initial area) elevation =  1047.000(Ft.)
      Difference in elevation =    11.100(Ft.)
      Slope =    0.01207  s(percent)=       1.21
      TC = k(0.530)*[(length^3)/(elevation change)]^0.2
      Initial area time of concentration =   19.655 min.
      Rainfall intensity =      1.626(In/Hr) for a    10.0 year storm
      UNDEVELOPED (poor cover) subarea
      Runoff Coefficient = 0.794
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 2)  =  86.00
      Pervious area fraction =  1.000; Impervious fraction =  0.000
      Initial subarea runoff =     11.592(CFS)
      Total initial stream area =        8.980(Ac.)
      Pervious area fraction = 1.000
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++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        2.000 to Point/Station        3.000
**** NATURAL CHANNEL TIME + SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Top of natural channel elevation =   1047.000(Ft.)
End of natural channel elevation =   1042.500(Ft.)
Length of natural channel  =   355.000(Ft.)
Estimated mean flow rate at midpoint of channel =     15.780(CFS)

Natural valley channel type used
L.A. County flood control district formula for channel velocity:
 Velocity(ft/s) = (7 + 8(q(English Units)^.352)(slope^0.5)
Velocity using mean channel flow =   3.17(Ft/s)

Correction to map slope used on extremely rugged channels with
drops and waterfalls (Plate D-6.2)
      Normal channel slope =  0.0127
Corrected/adjusted channel slope =  0.0127
Travel time =    1.87 min.      TC =   21.52  min.


 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.789
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  86.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Rainfall intensity =      1.547(In/Hr) for a    10.0 year storm
Subarea runoff =       7.922(CFS) for      6.490(Ac.)
Total runoff =     19.513(CFS)      Total area =      15.470(Ac.)


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Process from Point/Station        1.000 to Point/Station        3.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      15.470(Ac.)
Runoff from this stream =      19.513(CFS)
Time of concentration =   21.52 min.
Rainfall intensity =     1.547(In/Hr)
Summary of stream data:

Stream   Flow rate      TC              Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)


1       19.513      21.52                  1.547
Largest stream flow has longer time of concentration
Qp =     19.513 + sum of
Qp =     19.513

Total of 1 streams to confluence:
Flow rates before confluence point:
      19.513
Area of streams before confluence:
       15.470
Results of confluence:
```

```
Total flow rate =      19.513(CFS)
Time of concentration =     21.524 min.
Effective stream area after confluence =      15.470(Ac.)


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Process from Point/Station        4.000 to Point/Station        5.000
**** INITIAL AREA EVALUATION ****
----------------------------------------------------------------------------
Initial area flow distance =    990.000(Ft.)
Top (of initial area) elevation =  1058.100(Ft.)
Bottom (of initial area) elevation =  1045.500(Ft.)
Difference in elevation =     12.600(Ft.)
Slope =     0.01273  s(percent)=        1.27
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    20.025 min.
Rainfall intensity =       1.609(In/Hr) for a     10.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.793
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)   =  86.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =       3.752(CFS)
Total initial stream area =         2.940(Ac.)
Pervious area fraction = 1.000


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Process from Point/Station        4.000 to Point/Station        5.000
**** CONFLUENCE OF MINOR STREAMS ****
----------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 1
Stream flow area =       2.940(Ac.)
Runoff from this stream =       3.752(CFS)
Time of concentration =    20.03 min.
Rainfall intensity =      1.609(In/Hr)
Summary of stream data:

Stream   Flow rate      TC             Rainfall Intensity
 No.       (CFS)       (min)                  (In/Hr)


1        3.752     20.03                   1.609
Largest stream flow has longer time of concentration
Qp =       3.752 + sum of
Qp =       3.752

Total of 1 streams to confluence:
Flow rates before confluence point:
       3.752
Area of streams before confluence:
        2.940
Results of confluence:
Total flow rate =       3.752(CFS)
Time of concentration =     20.025 min.
Effective stream area after confluence =       2.940(Ac.)
```

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++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        6.000 to Point/Station        7.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
Initial area flow distance =   695.000(Ft.)
Top (of initial area) elevation =  1056.000(Ft.)
Bottom (of initial area) elevation =  1051.300(Ft.)
Difference in elevation =     4.700(Ft.)
Slope =    0.00676  s(percent)=       0.68
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   19.726 min.
Rainfall intensity =      1.623(In/Hr) for a    10.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.794
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  86.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =      2.898(CFS)
Total initial stream area =       2.250(Ac.)
Pervious area fraction = 1.000


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Process from Point/Station        7.000 to Point/Station        8.000
**** NATURAL CHANNEL TIME + SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Top of natural channel elevation =   1051.300(Ft.)
End of natural channel elevation =   1047.000(Ft.)
Length of natural channel  =   400.000(Ft.)
Estimated mean flow rate at midpoint of channel =      3.845(CFS)

Natural valley channel type used
L.A. County flood control district formula for channel velocity:
 Velocity(ft/s) = (7 + 8(q(English Units)^.352)(slope^0.5)
Velocity using mean channel flow =   2.06(Ft/s)

Correction to map slope used on extremely rugged channels with
drops and waterfalls (Plate D-6.2)
      Normal channel slope =  0.0107
Corrected/adjusted channel slope =  0.0107
Travel time =    3.24 min.     TC =   22.97  min.


 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.786
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  86.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Rainfall intensity =      1.492(In/Hr) for a    10.0 year storm
Subarea runoff =      1.724(CFS) for      1.470(Ac.)
Total runoff =      4.622(CFS)      Total area =      3.720(Ac.)


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```

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Process from Point/Station        6.000 to Point/Station        8.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      3.720(Ac.)
Runoff from this stream =      4.622(CFS)
Time of concentration =   22.97 min.
Rainfall intensity =     1.492(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)


1        4.622     22.97                  1.492
Largest stream flow has longer time of concentration
Qp =      4.622 + sum of
Qp =      4.622

Total of 1 streams to confluence:
Flow rates before confluence point:
       4.622
Area of streams before confluence:
        3.720
Results of confluence:
Total flow rate =      4.622(CFS)
Time of concentration =    22.965 min.
Effective stream area after confluence =      3.720(Ac.)


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Process from Point/Station        9.000 to Point/Station        8.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
Initial area flow distance =   571.000(Ft.)
Top (of initial area) elevation =  1053.200(Ft.)
Bottom (of initial area) elevation =  1047.000(Ft.)
Difference in elevation =     6.200(Ft.)
Slope =    0.01086  s(percent)=       1.09
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   16.587 min.
Rainfall intensity =      1.785(In/Hr) for a    10.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.802
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  86.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =      4.325(CFS)
Total initial stream area =       3.020(Ac.)
Pervious area fraction = 1.000


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Process from Point/Station        9.000 to Point/Station        8.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      3.020(Ac.)
```

```
Runoff from this stream =      4.325(CFS)
Time of concentration =   16.59 min.
Rainfall intensity =     1.785(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)


1        4.325     16.59                  1.785
Largest stream flow has longer time of concentration
Qp =      4.325 + sum of
Qp =      4.325

Total of 1 streams to confluence:
Flow rates before confluence point:
      4.325
Area of streams before confluence:
      3.020
Results of confluence:
Total flow rate =      4.325(CFS)
Time of concentration =    16.587 min.
Effective stream area after confluence =      3.020(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        9.000 to Point/Station       10.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
Initial area flow distance =   405.000(Ft.)
Top (of initial area) elevation =  1053.200(Ft.)
Bottom (of initial area) elevation =  1050.000(Ft.)
Difference in elevation =     3.200(Ft.)
Slope =    0.00790  s(percent)=       0.79
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   15.407 min.
Rainfall intensity =     1.859(In/Hr) for a    10.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.806
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)   =  86.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =      1.303(CFS)
Total initial stream area =       0.870(Ac.)
Pervious area fraction = 1.000


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Process from Point/Station        9.000 to Point/Station       10.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      0.870(Ac.)
Runoff from this stream =      1.303(CFS)
Time of concentration =   15.41 min.
Rainfall intensity =     1.859(In/Hr)
Summary of stream data:
```

```
Stream   Flow rate      TC              Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)

1        1.303     15.41                    1.859
Largest stream flow has longer time of concentration
Qp =      1.303 + sum of
Qp =      1.303

Total of 1 streams to confluence:
Flow rates before confluence point:
       1.303
Area of streams before confluence:
        0.870
Results of confluence:
Total flow rate =      1.303(CFS)
Time of concentration =    15.407 min.
Effective stream area after confluence =      0.870(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       11.000 to Point/Station       12.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
Initial area flow distance =   995.000(Ft.)
Top (of initial area) elevation =  1068.000(Ft.)
Bottom (of initial area) elevation =  1054.000(Ft.)
Difference in elevation =    14.000(Ft.)
Slope =    0.01407  s(percent)=       1.41
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   19.667 min.
Rainfall intensity =      1.625(In/Hr) for a    10.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.794
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  86.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =      4.942(CFS)
Total initial stream area =        3.830(Ac.)
Pervious area fraction = 1.000


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Process from Point/Station       12.000 to Point/Station       13.000
**** NATURAL CHANNEL TIME + SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Top of natural channel elevation =   1054.000(Ft.)
End of natural channel elevation =   1052.000(Ft.)
Length of natural channel  =   155.000(Ft.)
Estimated mean flow rate at midpoint of channel =      6.787(CFS)

Natural valley channel type used
L.A. County flood control district formula for channel velocity:
 Velocity(ft/s) = (7 + 8(q(English Units)^.352)(slope^0.5)
Velocity using mean channel flow =   2.58(Ft/s)

Correction to map slope used on extremely rugged channels with
drops and waterfalls (Plate D-6.2)
```

```
      Normal channel slope =  0.0129
Corrected/adjusted channel slope =  0.0129
Travel time =    1.00 min.     TC =   20.67  min.


 Adding area flow to channel
COMMERCIAL subarea type
Runoff Coefficient = 0.875
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Rainfall intensity =      1.581(In/Hr) for a    10.0 year storm
Subarea runoff =      3.959(CFS) for      2.860(Ac.)
Total runoff =      8.901(CFS)      Total area =      6.690(Ac.)


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Process from Point/Station       13.000 to Point/Station       14.000
**** NATURAL CHANNEL TIME + SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------------
Top of natural channel elevation =   1052.000(Ft.)
End of natural channel elevation =   1048.000(Ft.)
Length of natural channel  =   160.000(Ft.)
Estimated mean flow rate at midpoint of channel =     10.570(CFS)

Natural valley channel type used
L.A. County flood control district formula for channel velocity:
 Velocity(ft/s) = (7 + 8(q(English Units)^.352)(slope^0.5)
Velocity using mean channel flow =   4.01(Ft/s)

Correction to map slope used on extremely rugged channels with
drops and waterfalls (Plate D-6.2)
      Normal channel slope =  0.0250
Corrected/adjusted channel slope =  0.0250
Travel time =    0.67 min.     TC =   21.33  min.


 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.790
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  86.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Rainfall intensity =      1.554(In/Hr) for a    10.0 year storm
Subarea runoff =      3.080(CFS) for      2.510(Ac.)
Total runoff =     11.981(CFS)      Total area =      9.200(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       11.000 to Point/Station       14.000
**** CONFLUENCE OF MINOR STREAMS ****
----------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      9.200(Ac.)
Runoff from this stream =     11.981(CFS)
```

```
Time of concentration =   21.33 min.
Rainfall intensity =     1.554(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)


1       11.981     21.33                  1.554
Largest stream flow has longer time of concentration
Qp =     11.981 + sum of
Qp =     11.981

Total of 1 streams to confluence:
Flow rates before confluence point:
      11.981
Area of streams before confluence:
        9.200
Results of confluence:
Total flow rate =     11.981(CFS)
Time of concentration =    21.335 min.
Effective stream area after confluence =      9.200(Ac.)
End of computations, total study area =          35.220 (Ac.)
```

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 1999 Version 6.0
Rational Hydrology Study Date: 12/19/07 File:Existing2.out

********* Hydrology Study Control Information **********

English (in-lb) Units used in input data file

FOR OFFICIAL USE ONLY - CALTRANS San Bernardino - S/N 661

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 2.00 Antecedent Moisture Condition = 2

2 year, 1 hour precipitation = 0.550(In.)
100 year, 1 hour precipitation = 1.300(In.)

Storm event year = 2.0
Calculated rainfall intensity data:
1 hour intensity = 0.550(In/Hr)
Slope of intensity duration curve = 0.5500

++

Process from Point/Station 1.000 to Point/Station 2.000
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 920.000(Ft.)
Top (of initial area) elevation = 1058.100(Ft.)
Bottom (of initial area) elevation = 1047.000(Ft.)
Difference in elevation = 11.100(Ft.)
Slope = 0.01207 s(percent)= 1.21
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 19.655 min.
Rainfall intensity = 1.016(In/Hr) for a 2.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.742
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 86.00
Pervious area fraction = 1.000; Impervious fraction = 0.000
Initial subarea runoff = 6.767(CFS)
Total initial stream area = 8.980(Ac.)
Pervious area fraction = 1.000

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Process from Point/Station 2.000 to Point/Station 3.000
**** NATURAL CHANNEL TIME + SUBAREA FLOW ADDITION ****

Top of natural channel elevation = 1047.000(Ft.)

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End of natural channel elevation =   1042.500(Ft.)
Length of natural channel  =   355.000(Ft.)
Estimated mean flow rate at midpoint of channel =      9.212(CFS)

Natural valley channel type used
L.A. County flood control district formula for channel velocity:
 Velocity(ft/s) = (7 + 8(q(English Units)^.352)(slope^0.5)
Velocity using mean channel flow =   2.76(Ft/s)

Correction to map slope used on extremely rugged channels with
drops and waterfalls (Plate D-6.2)
      Normal channel slope =  0.0127
Corrected/adjusted channel slope =  0.0127
Travel time =    2.15 min.     TC =   21.80  min.


 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.734
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  86.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Rainfall intensity =      0.960(In/Hr) for a     2.0 year storm
Subarea runoff =      4.572(CFS) for      6.490(Ac.)
Total runoff =     11.339(CFS)     Total area =      15.470(Ac.)


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Process from Point/Station        1.000 to Point/Station        3.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 1
Stream flow area =     15.470(Ac.)
Runoff from this stream =     11.339(CFS)
Time of concentration =  21.80 min.
Rainfall intensity =     0.960(In/Hr)
Summary of stream data:

Stream   Flow rate      TC          Rainfall Intensity
 No.       (CFS)       (min)              (In/Hr)


1       11.339     21.80                0.960
Largest stream flow has longer time of concentration
Qp =     11.339 + sum of
Qp =     11.339

Total of 1 streams to confluence:
Flow rates before confluence point:
      11.339
Area of streams before confluence:
       15.470
Results of confluence:
Total flow rate =     11.339(CFS)
Time of concentration =    21.802 min.
Effective stream area after confluence =     15.470(Ac.)
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++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        4.000 to Point/Station        5.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
Initial area flow distance =    990.000(Ft.)
Top (of initial area) elevation =  1058.100(Ft.)
Bottom (of initial area) elevation =  1045.500(Ft.)
Difference in elevation =     12.600(Ft.)
Slope =     0.01273  s(percent)=        1.27
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    20.025 min.
Rainfall intensity =      1.006(In/Hr) for a      2.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.740
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  86.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =       2.189(CFS)
Total initial stream area =        2.940(Ac.)
Pervious area fraction = 1.000


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Process from Point/Station        4.000 to Point/Station        5.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 1
Stream flow area =       2.940(Ac.)
Runoff from this stream =       2.189(CFS)
Time of concentration =    20.03 min.
Rainfall intensity =      1.006(In/Hr)
Summary of stream data:

Stream    Flow rate       TC             Rainfall Intensity
 No.        (CFS)        (min)                  (In/Hr)


1         2.189      20.03                    1.006
Largest stream flow has longer time of concentration
Qp =       2.189 + sum of
Qp =       2.189

Total of 1 streams to confluence:
Flow rates before confluence point:
       2.189
Area of streams before confluence:
       2.940
Results of confluence:
Total flow rate =       2.189(CFS)
Time of concentration =     20.025 min.
Effective stream area after confluence =       2.940(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        6.000 to Point/Station        7.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
Initial area flow distance =    695.000(Ft.)
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Top (of initial area) elevation =  1056.000(Ft.)
Bottom (of initial area) elevation =  1051.300(Ft.)
Difference in elevation =      4.700(Ft.)
Slope =    0.00676  s(percent)=       0.68
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   19.726 min.
Rainfall intensity =      1.014(In/Hr) for a     2.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.741
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  86.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =      1.691(CFS)
Total initial stream area =        2.250(Ac.)
Pervious area fraction = 1.000


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Process from Point/Station        7.000 to Point/Station        8.000
**** NATURAL CHANNEL TIME + SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Top of natural channel elevation =   1051.300(Ft.)
End of natural channel elevation =   1047.000(Ft.)
Length of natural channel  =   400.000(Ft.)
Estimated mean flow rate at midpoint of channel =      2.244(CFS)

Natural valley channel type used
L.A. County flood control district formula for channel velocity:
 Velocity(ft/s) = (7 + 8(q(English Units)^.352)(slope^0.5)
Velocity using mean channel flow =  1.83(Ft/s)

Correction to map slope used on extremely rugged channels with
drops and waterfalls (Plate D-6.2)
     Normal channel slope =  0.0107
Corrected/adjusted channel slope =  0.0107
Travel time =    3.65 min.     TC =   23.37  min.


 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.729
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  86.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Rainfall intensity =      0.924(In/Hr) for a     2.0 year storm
Subarea runoff =      0.990(CFS) for      1.470(Ac.)
Total runoff =      2.681(CFS)      Total area =      3.720(Ac.)


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Process from Point/Station        6.000 to Point/Station        8.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      3.720(Ac.)
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```
Runoff from this stream =      2.681(CFS)
Time of concentration =   23.37 min.
Rainfall intensity =     0.924(In/Hr)
Summary of stream data:

Stream    Flow rate       TC              Rainfall Intensity
 No.        (CFS)        (min)                  (In/Hr)


1         2.681      23.37                    0.924
Largest stream flow has longer time of concentration
Qp =       2.681 + sum of
Qp =       2.681

Total of 1 streams to confluence:
Flow rates before confluence point:
       2.681
Area of streams before confluence:
        3.720
Results of confluence:
Total flow rate =       2.681(CFS)
Time of concentration =    23.373 min.
Effective stream area after confluence =       3.720(Ac.)


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Process from Point/Station        9.000 to Point/Station         8.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
Initial area flow distance =   571.000(Ft.)
Top (of initial area) elevation =  1053.200(Ft.)
Bottom (of initial area) elevation =  1047.000(Ft.)
Difference in elevation =      6.200(Ft.)
Slope =    0.01086  s(percent)=       1.09
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   16.587 min.
Rainfall intensity =      1.115(In/Hr) for a      2.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.753
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  86.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =      2.538(CFS)
Total initial stream area =        3.020(Ac.)
Pervious area fraction = 1.000


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Process from Point/Station        9.000 to Point/Station         8.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      3.020(Ac.)
Runoff from this stream =      2.538(CFS)
Time of concentration =   16.59 min.
Rainfall intensity =     1.115(In/Hr)
Summary of stream data:
```

```
Stream    Flow rate      TC              Rainfall Intensity
 No.        (CFS)       (min)                 (In/Hr)

1          2.538      16.59                    1.115
Largest stream flow has longer time of concentration
Qp =       2.538 + sum of
Qp =       2.538

Total of 1 streams to confluence:
Flow rates before confluence point:
       2.538
Area of streams before confluence:
       3.020
Results of confluence:
Total flow rate =       2.538(CFS)
Time of concentration =    16.587 min.
Effective stream area after confluence =       3.020(Ac.)


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Process from Point/Station        9.000 to Point/Station       10.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
Initial area flow distance =    405.000(Ft.)
Top (of initial area) elevation =  1053.200(Ft.)
Bottom (of initial area) elevation =  1050.000(Ft.)
Difference in elevation =      3.200(Ft.)
Slope =    0.00790  s(percent)=       0.79
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   15.407 min.
Rainfall intensity =      1.162(In/Hr) for a      2.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.758
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)   =  86.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =       0.766(CFS)
Total initial stream area =        0.870(Ac.)
Pervious area fraction = 1.000


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Process from Point/Station        9.000 to Point/Station       10.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 1
Stream flow area =       0.870(Ac.)
Runoff from this stream =       0.766(CFS)
Time of concentration =   15.41 min.
Rainfall intensity =     1.162(In/Hr)
Summary of stream data:

Stream    Flow rate      TC              Rainfall Intensity
 No.        (CFS)       (min)                 (In/Hr)

1          0.766      15.41                    1.162
```

```
Largest stream flow has longer time of concentration
Qp =      0.766 + sum of
Qp =      0.766

Total of 1 streams to confluence:
Flow rates before confluence point:
       0.766
Area of streams before confluence:
        0.870
Results of confluence:
Total flow rate =      0.766(CFS)
Time of concentration =    15.407 min.
Effective stream area after confluence =      0.870(Ac.)


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Process from Point/Station       11.000 to Point/Station       12.000
**** INITIAL AREA EVALUATION ****
----------------------------------------------------------------------------
Initial area flow distance =   995.000(Ft.)
Top (of initial area) elevation =  1068.000(Ft.)
Bottom (of initial area) elevation =  1054.000(Ft.)
Difference in elevation =    14.000(Ft.)
Slope =    0.01407  s(percent)=       1.41
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   19.667 min.
Rainfall intensity =      1.016(In/Hr) for a     2.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.742
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  86.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =      2.885(CFS)
Total initial stream area =       3.830(Ac.)
Pervious area fraction = 1.000


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Process from Point/Station       12.000 to Point/Station       13.000
**** NATURAL CHANNEL TIME + SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------------
Top of natural channel elevation =   1054.000(Ft.)
End of natural channel elevation =   1052.000(Ft.)
Length of natural channel  =   155.000(Ft.)
Estimated mean flow rate at midpoint of channel =      3.962(CFS)

Natural valley channel type used
L.A. County flood control district formula for channel velocity:
 Velocity(ft/s) = (7 + 8(q(English Units)^.352)(slope^0.5)
Velocity using mean channel flow =   2.27(Ft/s)

Correction to map slope used on extremely rugged channels with
drops and waterfalls (Plate D-6.2)
     Normal channel slope =  0.0129
Corrected/adjusted channel slope =  0.0129
Travel time =    1.14 min.     TC =   20.81  min.
```

```
 Adding area flow to channel
COMMERCIAL subarea type
Runoff Coefficient = 0.866
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Rainfall intensity =      0.985(In/Hr) for a     2.0 year storm
Subarea runoff =      2.439(CFS) for      2.860(Ac.)
Total runoff =      5.324(CFS)      Total area =      6.690(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      13.000 to Point/Station      14.000
**** NATURAL CHANNEL TIME + SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------------
Top of natural channel elevation =   1052.000(Ft.)
End of natural channel elevation =   1048.000(Ft.)
Length of natural channel  =   160.000(Ft.)
Estimated mean flow rate at midpoint of channel =      6.323(CFS)

Natural valley channel type used
L.A. County flood control district formula for channel velocity:
 Velocity(ft/s) = (7 + 8(q(English Units)^.352)(slope^0.5)
Velocity using mean channel flow =   3.53(Ft/s)

Correction to map slope used on extremely rugged channels with
drops and waterfalls (Plate D-6.2)
     Normal channel slope =  0.0250
Corrected/adjusted channel slope =  0.0250
Travel time =    0.76 min.     TC =   21.56  min.


 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.735
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  86.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Rainfall intensity =      0.966(In/Hr) for a     2.0 year storm
Subarea runoff =      1.781(CFS) for      2.510(Ac.)
Total runoff =      7.105(CFS)      Total area =      9.200(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      11.000 to Point/Station      14.000
**** CONFLUENCE OF MINOR STREAMS ****
----------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      9.200(Ac.)
Runoff from this stream =      7.105(CFS)
Time of concentration =   21.56 min.
Rainfall intensity =    0.966(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
```

No.	(CFS)	(min)	(In/Hr)
1	7.105	21.56	0.966

Largest stream flow has longer time of concentration
Qp = 7.105 + sum of
Qp = 7.105

Total of 1 streams to confluence:
Flow rates before confluence point:
7.105
Area of streams before confluence:
9.200
Results of confluence:
Total flow rate = 7.105(CFS)
Time of concentration = 21.561 min.
Effective stream area after confluence = 9.200(Ac.)
End of computations, total study area = 35.220 (Ac.)

EAST TOTAL

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989 - 1999 Version 6.0

Rational Hydrology Study Date: 12/14/10
File:THE100NEW.out

********* Hydrology Study Control Information **********

English (in-lb) Units used in input data file

FOR OFFICIAL USE ONLY - CALTRANS San Bernardino - S/N 661

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [Murrieta,Tmc,Rnch CaNorco] area used.
10 year storm 10 minute intensity = 2.360(In/Hr)
10 year storm 60 minute intensity = 0.880(In/Hr)
100 year storm 10 minute intensity = 3.480(In/Hr)
100 year storm 60 minute intensity = 1.300(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity = 1.300(In/Hr)
Slope of intensity duration curve = 0.5500

++

Process from Point/Station 700.000 to Point/Station 701.000

**** INITIAL AREA EVALUATION ****

Initial area flow distance = 350.000(Ft.)
Top (of initial area) elevation = 1046.000(Ft.)
Bottom (of initial area) elevation = 1045.000(Ft.)
Difference in elevation = 1.000(Ft.)
Slope = 0.00286 s(percent)= 0.29
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 17.812 min.
Rainfall intensity = 2.535(In/Hr) for a 100.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.829
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000

```
      RI index for soil(AMC 2)  =  86.00
      Pervious area fraction =  1.000; Impervious fraction =  0.000
      Initial subarea runoff =      6.600(CFS)
      Total initial stream area =        3.140(Ac.)
      Pervious area fraction = 1.000


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station       700.000 to Point/Station
701.000
      **** CONFLUENCE OF MINOR STREAMS ****
      ------------------------------------------------------------------------
---
      Along Main Stream number: 1 in normal stream number 1
      Stream flow area =        3.140(Ac.)
      Runoff from this stream =       6.600(CFS)
      Time of concentration =   17.81 min.
      Rainfall intensity =    2.535(In/Hr)
      Summary of stream data:

      Stream    Flow rate       TC              Rainfall Intensity
       No.        (CFS)         (min)                 (In/Hr)


      1         6.600      17.81                    2.535
      Largest stream flow has longer time of concentration
      Qp =       6.600 + sum of
      Qp =       6.600

      Total of 1 streams to confluence:
      Flow rates before confluence point:
            6.600
      Area of streams before confluence:
             3.140
      Results of confluence:
      Total flow rate =       6.600(CFS)
      Time of concentration =    17.812 min.
      Effective stream area after confluence =       3.140(Ac.)


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station       438.000 to Point/Station
702.000
      **** USER DEFINED FLOW INFORMATION AT A POINT ****
      ------------------------------------------------------------------------
---
      Rainfall intensity =       2.377(In/Hr) for a   100.0 year storm
      COMMERCIAL subarea type
      Runoff Coefficient = 0.882
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 2)  =  69.00
      Pervious area fraction =  0.100; Impervious fraction =  0.900
      User specified values are as follows:
      TC =  20.02 min.  Rain intensity =       2.38(In/Hr)
      Total area =        12.99(Ac.)  Total runoff =     26.24(CFS)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station       438.000 to Point/Station
702.000
      **** CONFLUENCE OF MINOR STREAMS ****
      ------------------------------------------------------------------------
      Along Main Stream number: 1 in normal stream number 2
      Stream flow area =      12.990(Ac.)
      Runoff from this stream =      26.239(CFS)
      Time of concentration =   20.02 min.
      Rainfall intensity =     2.377(In/Hr)
      Summary of stream data:

      Stream    Flow rate       TC              Rainfall Intensity
       No.        (CFS)        (min)                  (In/Hr)


      1          6.600      17.81                    2.535
      2         26.239      20.02                    2.377
      Largest stream flow has longer time of concentration
      Qp =      26.239 + sum of
               Qb          Ia/Ib
                6.600 *     0.938 =       6.188
      Qp =      32.427

      Total of 2 streams to confluence:
      Flow rates before confluence point:
            6.600       26.239
      Area of streams before confluence:
            3.140       12.990
      Results of confluence:
      Total flow rate =      32.427(CFS)
      Time of concentration =     20.025 min.
      Effective stream area after confluence =      16.130(Ac.)


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station       618.000 to Point/Station
702.000
      **** CONFLUENCE OF MAIN STREAMS ****
      ------------------------------------------------------------------------
      The following data inside Main Stream is listed:
      In Main Stream number: 1
      Stream flow area =      16.130(Ac.)
      Runoff from this stream =      32.427(CFS)
      Time of concentration =   20.02 min.
      Rainfall intensity =     2.377(In/Hr)
      Summary of stream data:

      Stream    Flow rate       TC              Rainfall Intensity
       No.        (CFS)        (min)                  (In/Hr)


      1        32.427      20.02                    2.377
      Largest stream flow has longer time of concentration
      Qp =      32.427 + sum of
      Qp =      32.427
```

```
      Total of 1 main streams to confluence:
      Flow rates before confluence point:
            32.427
      Area of streams before confluence:
             16.130


      Results of confluence:
      Total flow rate =      32.427(CFS)
      Time of concentration =     20.025 min.
      Effective stream area after confluence  =      16.130(Ac.)


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station       618.000 to Point/Station
702.000
      **** USER DEFINED FLOW INFORMATION AT A POINT ****
      ------------------------------------------------------------------------
---
      Rainfall intensity =      3.847(In/Hr) for a    100.0 year storm
      COMMERCIAL subarea type
      Runoff Coefficient = 0.888
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 2)   =  69.00
      Pervious area fraction =  0.100; Impervious fraction =  0.900
      User specified values are as follows:
      TC =    8.35 min.  Rain intensity =       3.85(In/Hr)
      Total area =          7.56(Ac.)  Total runoff =      25.52(CFS)


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station       618.000 to Point/Station
702.000
      **** CONFLUENCE OF MINOR STREAMS ****
      ------------------------------------------------------------------------
---
      Along Main Stream number: 1 in normal stream number 1
      Stream flow area =        7.560(Ac.)
      Runoff from this stream =      25.525(CFS)
      Time of concentration =     8.35 min.
      Rainfall intensity =      3.847(In/Hr)
      Summary of stream data:

      Stream    Flow rate       TC          Rainfall Intensity
       No.        (CFS)        (min)              (In/Hr)


      1        25.525        8.35                 3.847
      Largest stream flow has longer time of concentration
      Qp =      25.525 + sum of
      Qp =      25.525

      Total of 1 streams to confluence:
      Flow rates before confluence point:
            25.525
```

```
      Area of streams before confluence:
            7.560
      Results of confluence:
      Total flow rate =      25.525(CFS)
      Time of concentration =      8.345 min.
      Effective stream area after confluence =       7.560(Ac.)

      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station       618.000 to Point/Station
702.000
      **** CONFLUENCE OF MAIN STREAMS ****
      ------------------------------------------------------------------------

      The following data inside Main Stream is listed:
      In Main Stream number: 2
      Stream flow area =       7.560(Ac.)
      Runoff from this stream =      25.525(CFS)
      Time of concentration =     8.35 min.
      Rainfall intensity =      3.847(In/Hr)
      Summary of stream data:

      Stream    Flow rate       TC              Rainfall Intensity
       No.        (CFS)        (min)                  (In/Hr)

      1        32.427      20.02                2.377
      2        25.525       8.35                3.847
      Largest stream flow has longer time of concentration
      Qp =      32.427 + sum of
              Qb          Ia/Ib
              25.525 *     0.618 =      15.772
      Qp =      48.199

      Total of 2 main streams to confluence:
      Flow rates before confluence point:
            32.427       25.525
      Area of streams before confluence:
             16.130        7.560


      Results of confluence:
      Total flow rate =      48.199(CFS)
      Time of concentration =     20.025 min.
      Effective stream area after confluence  =      23.690(Ac.)
      End of computations, total study area =          23.690 (Ac.)
```

```
                    Riverside County Rational Hydrology Program

      CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 1999 Version
6.0
            Rational Hydrology Study        Date: 12/16/10
File:THE10.out
      ------------------------------------------------------------------
------
       *********   Hydrology Study Control Information **********

       English (in-lb) Units used in input data file

      ------------------------------------------------------------------
------
      FOR OFFICIAL USE ONLY - CALTRANS San Bernardino - S/N 661
      ------------------------------------------------------------------
------
      Rational Method Hydrology Program based on
      Riverside County Flood Control & Water Conservation District
      1978 hydrology manual

      Storm event (year) =    10.00 Antecedent Moisture Condition = 2

      Standard intensity-duration curves data (Plate D-4.1)
      For the [ Murrieta,Tmc,Rnch CaNorco ] area used.
      10 year storm 10 minute intensity =  2.360(In/Hr)
      10 year storm 60 minute intensity =  0.880(In/Hr)
      100 year storm 10 minute intensity =  3.480(In/Hr)
      100 year storm 60 minute intensity =  1.300(In/Hr)

      Storm event year =  10.0
      Calculated rainfall intensity data:
      1 hour intensity =  0.880(In/Hr)
      Slope of intensity duration curve = 0.5500



      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station      700.000 to Point/Station
701.000
      **** INITIAL AREA EVALUATION ****
      ------------------------------------------------------------------
----
      Initial area flow distance =    350.000(Ft.)
      Top (of initial area) elevation =  1046.000(Ft.)
      Bottom (of initial area) elevation =  1045.000(Ft.)
      Difference in elevation =      1.000(Ft.)
      Slope =    0.00286  s(percent)=       0.29
      TC = k(0.530)*[(length^3)/(elevation change)]^0.2
      Initial area time of concentration =   17.812 min.
      Rainfall intensity =      1.716(In/Hr) for a    10.0 year storm
      UNDEVELOPED (poor cover) subarea
      Runoff Coefficient = 0.799
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
```

```
      RI index for soil(AMC 2)   =  86.00
      Pervious area fraction =  1.000; Impervious fraction =  0.000
      Initial subarea runoff =       4.305(CFS)
      Total initial stream area =        3.140(Ac.)
      Pervious area fraction = 1.000


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station       700.000 to Point/Station
701.000
      **** CONFLUENCE OF MINOR STREAMS ****
      ------------------------------------------------------------------------
---
      Along Main Stream number: 1 in normal stream number 1
      Stream flow area =      3.140(Ac.)
      Runoff from this stream =       4.305(CFS)
      Time of concentration =    17.81 min.
      Rainfall intensity =     1.716(In/Hr)
      Summary of stream data:

      Stream    Flow rate       TC            Rainfall Intensity
       No.        (CFS)        (min)                 (In/Hr)


      1         4.305      17.81                  1.716
      Largest stream flow has longer time of concentration
      Qp =      4.305 + sum of
      Qp =      4.305

      Total of 1 streams to confluence:
      Flow rates before confluence point:
            4.305
      Area of streams before confluence:
            3.140
      Results of confluence:
      Total flow rate =       4.305(CFS)
      Time of concentration =     17.812 min.
      Effective stream area after confluence =       3.140(Ac.)


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station       438.000 to Point/Station
702.000
      **** USER DEFINED FLOW INFORMATION AT A POINT ****
      ------------------------------------------------------------------------
---
      Rainfall intensity =      1.593(In/Hr) for a     10.0 year storm
      COMMERCIAL subarea type
      Runoff Coefficient = 0.875
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 2)   =  69.00
      Pervious area fraction =  0.100; Impervious fraction =  0.900
      User specified values are as follows:
      TC =  20.40 min.  Rain intensity =       1.59(In/Hr)
      Total area =        12.99(Ac.)  Total runoff =      17.26(CFS)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station       438.000 to Point/Station
702.000
      **** CONFLUENCE OF MINOR STREAMS ****
      ------------------------------------------------------------------------
      Along Main Stream number: 1 in normal stream number 2
      Stream flow area =      12.990(Ac.)
      Runoff from this stream =      17.263(CFS)
      Time of concentration =   20.40 min.
      Rainfall intensity =     1.593(In/Hr)
      Summary of stream data:

      Stream    Flow rate       TC             Rainfall Intensity
       No.        (CFS)        (min)                  (In/Hr)


      1          4.305      17.81                    1.716
      2         17.263      20.40                    1.593
      Largest stream flow has longer time of concentration
      Qp =      17.263 + sum of
               Qb          Ia/Ib
                4.305 *     0.928 =       3.996
      Qp =      21.259

      Total of 2 streams to confluence:
      Flow rates before confluence point:
            4.305      17.263
      Area of streams before confluence:
            3.140       12.990
      Results of confluence:
      Total flow rate =      21.259(CFS)
      Time of concentration =     20.400 min.
      Effective stream area after confluence =      16.130(Ac.)


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station       618.000 to Point/Station
702.000
      **** CONFLUENCE OF MAIN STREAMS ****
      ------------------------------------------------------------------------
      The following data inside Main Stream is listed:
      In Main Stream number: 1
      Stream flow area =      16.130(Ac.)
      Runoff from this stream =      21.259(CFS)
      Time of concentration =   20.40 min.
      Rainfall intensity =     1.593(In/Hr)
      Summary of stream data:

      Stream    Flow rate       TC             Rainfall Intensity
       No.        (CFS)        (min)                  (In/Hr)


      1        21.259      20.40                    1.593
      Largest stream flow has longer time of concentration
      Qp =      21.259 + sum of
      Qp =      21.259
```

```
      Total of 1 main streams to confluence:
      Flow rates before confluence point:
           21.259
      Area of streams before confluence:
            16.130


      Results of confluence:
      Total flow rate =      21.259(CFS)
      Time of concentration =     20.400 min.
      Effective stream area after confluence  =      16.130(Ac.)

      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station      618.000 to Point/Station
702.000
      **** USER DEFINED FLOW INFORMATION AT A POINT ****
      ------------------------------------------------------------------------
---
      Rainfall intensity =      2.580(In/Hr) for a     10.0 year storm
      COMMERCIAL subarea type
      Runoff Coefficient = 0.883
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 2)  =  69.00
      Pervious area fraction =  0.100; Impervious fraction =  0.900
      User specified values are as follows:
      TC =    8.49 min.  Rain intensity =      2.58(In/Hr)
      Total area =          7.56(Ac.)  Total runoff =      17.19(CFS)


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station      618.000 to Point/Station
702.000
      **** CONFLUENCE OF MINOR STREAMS ****
      ------------------------------------------------------------------------
---
      Along Main Stream number: 1 in normal stream number 1
      Stream flow area =       7.560(Ac.)
      Runoff from this stream =      17.186(CFS)
      Time of concentration =     8.49 min.
      Rainfall intensity =      2.580(In/Hr)
      Summary of stream data:

      Stream    Flow rate       TC          Rainfall Intensity
       No.        (CFS)        (min)              (In/Hr)


      1        17.186        8.49                 2.580
      Largest stream flow has longer time of concentration
      Qp =      17.186 + sum of
      Qp =      17.186

      Total of 1 streams to confluence:
      Flow rates before confluence point:
           17.186
```

```
      Area of streams before confluence:
              7.560
      Results of confluence:
      Total flow rate =      17.186(CFS)
      Time of concentration =      8.490 min.
      Effective stream area after confluence =       7.560(Ac.)

      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station       618.000 to Point/Station
702.000
      **** CONFLUENCE OF MAIN STREAMS ****
      ------------------------------------------------------------------------

      The following data inside Main Stream is listed:
      In Main Stream number: 2
      Stream flow area =       7.560(Ac.)
      Runoff from this stream =      17.186(CFS)
      Time of concentration =     8.49 min.
      Rainfall intensity =      2.580(In/Hr)
      Summary of stream data:

      Stream    Flow rate       TC              Rainfall Intensity
       No.        (CFS)        (min)                  (In/Hr)


      1        21.259      20.40                  1.593
      2        17.186       8.49                  2.580
      Largest stream flow has longer time of concentration
      Qp =      21.259 + sum of
               Qb          Ia/Ib
               17.186 *     0.617 =      10.612
      Qp =      31.870

      Total of 2 main streams to confluence:
      Flow rates before confluence point:
            21.259      17.186
      Area of streams before confluence:
             16.130       7.560


      Results of confluence:
      Total flow rate =      31.870(CFS)
      Time of concentration =     20.400 min.
      Effective stream area after confluence  =      23.690(Ac.)
      End of computations, total study area =          23.690 (Ac.)
```

```
                    Riverside County Rational Hydrology Program

      CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 1999 Version
6.0
            Rational Hydrology Study        Date: 12/16/10
File:THE2.out
      ------------------------------------------------------------------
------
       *********   Hydrology Study Control Information **********

       English (in-lb) Units used in input data file

      ------------------------------------------------------------------
------
      FOR OFFICIAL USE ONLY - CALTRANS San Bernardino - S/N 661
      ------------------------------------------------------------------
------
      Rational Method Hydrology Program based on
      Riverside County Flood Control & Water Conservation District
      1978 hydrology manual

      Storm event (year) =    2.00 Antecedent Moisture Condition = 2

      Standard intensity-duration curves data (Plate D-4.1)
      For the [ Murrieta,Tmc,Rnch CaNorco ] area used.
      10 year storm 10 minute intensity =  2.360(In/Hr)
      10 year storm 60 minute intensity =  0.880(In/Hr)
      100 year storm 10 minute intensity =  3.480(In/Hr)
      100 year storm 60 minute intensity =  1.300(In/Hr)

      Storm event year =   2.0
      Calculated rainfall intensity data:
      1 hour intensity =  0.586(In/Hr)
      Slope of intensity duration curve = 0.5500



      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station      700.000 to Point/Station
701.000
      **** INITIAL AREA EVALUATION ****
      ------------------------------------------------------------------
------
      Initial area flow distance =   350.000(Ft.)
      Top (of initial area) elevation =  1046.000(Ft.)
      Bottom (of initial area) elevation =  1045.000(Ft.)
      Difference in elevation =     1.000(Ft.)
      Slope =    0.00286  s(percent)=       0.29
      TC = k(0.530)*[(length^3)/(elevation change)]^0.2
      Initial area time of concentration =   17.812 min.
      Rainfall intensity =      1.144(In/Hr) for a     2.0 year storm
      UNDEVELOPED (poor cover) subarea
      Runoff Coefficient = 0.756
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
```

```
      RI index for soil(AMC 2)  =  86.00
      Pervious area fraction =  1.000; Impervious fraction =  0.000
      Initial subarea runoff =      2.717(CFS)
      Total initial stream area =        3.140(Ac.)
      Pervious area fraction = 1.000


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station      700.000 to Point/Station
701.000
      **** CONFLUENCE OF MINOR STREAMS ****
      ------------------------------------------------------------------------
----
      Along Main Stream number: 1 in normal stream number 1
      Stream flow area =      3.140(Ac.)
      Runoff from this stream =      2.717(CFS)
      Time of concentration =  17.81 min.
      Rainfall intensity =    1.144(In/Hr)
      Summary of stream data:

      Stream   Flow rate      TC            Rainfall Intensity
       No.       (CFS)      (min)                 (In/Hr)


      1        2.717      17.81                  1.144
      Largest stream flow has longer time of concentration
      Qp =      2.717 + sum of
      Qp =      2.717

      Total of 1 streams to confluence:
      Flow rates before confluence point:
            2.717
      Area of streams before confluence:
            3.140
      Results of confluence:
      Total flow rate =      2.717(CFS)
      Time of concentration =    17.812 min.
      Effective stream area after confluence =      3.140(Ac.)


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station      438.000 to Point/Station
702.000
      **** USER DEFINED FLOW INFORMATION AT A POINT ****
      ------------------------------------------------------------------------
----
      Rainfall intensity =      1.048(In/Hr) for a      2.0 year storm
      COMMERCIAL subarea type
      Runoff Coefficient = 0.867
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 2)  =  69.00
      Pervious area fraction =  0.100; Impervious fraction =  0.900
      User specified values are as follows:
      TC =  20.87 min.  Rain intensity =       1.05(In/Hr)
      Total area =       12.99(Ac.)  Total runoff =     11.04(CFS)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station       438.000 to Point/Station
702.000
      **** CONFLUENCE OF MINOR STREAMS ****
      ------------------------------------------------------------------------
---
      Along Main Stream number: 1 in normal stream number 2
      Stream flow area =      12.990(Ac.)
      Runoff from this stream =      11.037(CFS)
      Time of concentration =    20.87 min.
      Rainfall intensity =      1.048(In/Hr)
      Summary of stream data:

      Stream    Flow rate       TC             Rainfall Intensity
       No.        (CFS)        (min)                 (In/Hr)


      1          2.717      17.81                    1.144
      2         11.037      20.87                    1.048
      Largest stream flow has longer time of concentration
      Qp =      11.037 + sum of
               Qb          Ia/Ib
                2.717 *     0.917 =       2.490
      Qp =      13.527

      Total of 2 streams to confluence:
      Flow rates before confluence point:
             2.717       11.037
      Area of streams before confluence:
             3.140        12.990
      Results of confluence:
      Total flow rate =      13.527(CFS)
      Time of concentration =     20.870 min.
      Effective stream area after confluence =      16.130(Ac.)


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station       618.000 to Point/Station
702.000
      **** CONFLUENCE OF MAIN STREAMS ****
      ------------------------------------------------------------------------
---
      The following data inside Main Stream is listed:
      In Main Stream number: 1
      Stream flow area =      16.130(Ac.)
      Runoff from this stream =      13.527(CFS)
      Time of concentration =    20.87 min.
      Rainfall intensity =      1.048(In/Hr)
      Summary of stream data:

      Stream    Flow rate       TC             Rainfall Intensity
       No.        (CFS)        (min)                 (In/Hr)


      1        13.527      20.87                    1.048
      Largest stream flow has longer time of concentration
      Qp =      13.527 + sum of
      Qp =      13.527
```

```
      Total of 1 main streams to confluence:
      Flow rates before confluence point:
            13.527
      Area of streams before confluence:
             16.130


      Results of confluence:
      Total flow rate =      13.527(CFS)
      Time of concentration =     20.870 min.
      Effective stream area after confluence  =      16.130(Ac.)

      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station       618.000 to Point/Station
702.000
      **** USER DEFINED FLOW INFORMATION AT A POINT ****
      ------------------------------------------------------------------------
---
      Rainfall intensity =      1.697(In/Hr) for a      2.0 year storm
      COMMERCIAL subarea type
      Runoff Coefficient = 0.877
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 2)  =  69.00
      Pervious area fraction =  0.100; Impervious fraction =  0.900
      User specified values are as follows:
      TC =   8.69 min.  Rain intensity =      1.70(In/Hr)
      Total area =         7.56(Ac.)  Total runoff =     11.35(CFS)


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++++
      Process from Point/Station       618.000 to Point/Station
702.000
      **** CONFLUENCE OF MINOR STREAMS ****
      ------------------------------------------------------------------------
---
      Along Main Stream number: 1 in normal stream number 1
      Stream flow area =       7.560(Ac.)
      Runoff from this stream =      11.345(CFS)
      Time of concentration =    8.69 min.
      Rainfall intensity =     1.697(In/Hr)
      Summary of stream data:

      Stream    Flow rate       TC            Rainfall Intensity
       No.        (CFS)        (min)                 (In/Hr)


      1        11.345       8.69                   1.697
      Largest stream flow has longer time of concentration
      Qp =      11.345 + sum of
      Qp =      11.345

      Total of 1 streams to confluence:
      Flow rates before confluence point:
            11.345
```

```
      Area of streams before confluence:
            7.560
      Results of confluence:
      Total flow rate =      11.345(CFS)
      Time of concentration =      8.690 min.
      Effective stream area after confluence =       7.560(Ac.)

      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station       618.000 to Point/Station
702.000
      **** CONFLUENCE OF MAIN STREAMS ****
      ------------------------------------------------------------------------
      The following data inside Main Stream is listed:
      In Main Stream number: 2
      Stream flow area =       7.560(Ac.)
      Runoff from this stream =      11.345(CFS)
      Time of concentration =     8.69 min.
      Rainfall intensity =      1.697(In/Hr)
      Summary of stream data:

      Stream    Flow rate       TC              Rainfall Intensity
       No.        (CFS)        (min)                  (In/Hr)


      1         13.527      20.87                  1.048
      2         11.345       8.69                  1.697
      Largest stream flow has longer time of concentration
      Qp =       13.527 + sum of
               Qb          Ia/Ib
               11.345 *     0.618 =        7.007
      Qp =       20.534

      Total of 2 main streams to confluence:
      Flow rates before confluence point:
            13.527       11.345
      Area of streams before confluence:
             16.130         7.560


      Results of confluence:
      Total flow rate =      20.534(CFS)
      Time of concentration =     20.870 min.
      Effective stream area after confluence  =      23.690(Ac.)
      End of computations, total study area =          23.690 (Ac.)
```

WEST

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989 - 1999 Version 6.0

Rational Hydrology Study Date: 12/13/10
File:THW100.out

********* Hydrology Study Control Information **********

English (in-lb) Units used in input data file

FOR OFFICIAL USE ONLY - CALTRANS San Bernardino - S/N 661

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [Murrieta,Tmc,Rnch CaNorco] area used.
10 year storm 10 minute intensity = 2.360(In/Hr)
10 year storm 60 minute intensity = 0.880(In/Hr)
100 year storm 10 minute intensity = 3.480(In/Hr)
100 year storm 60 minute intensity = 1.300(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity = 1.300(In/Hr)
Slope of intensity duration curve = 0.5500

++

Process from Point/Station 6.000 to Point/Station 7.000

**** INITIAL AREA EVALUATION ****

Initial area flow distance = 390.000(Ft.)
Top (of initial area) elevation = 1057.000(Ft.)
Bottom (of initial area) elevation = 1052.500(Ft.)
Difference in elevation = 4.500(Ft.)
Slope = 0.01154 s(percent)= 1.15
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 7.964 min.
Rainfall intensity = 3.947(In/Hr) for a 100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.888
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000

```
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      2.384(CFS)
Total initial stream area =        0.680(Ac.)
Pervious area fraction = 0.100

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++++
Process from Point/Station        7.000 to Point/Station
8.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------

Upstream point/station elevation =  1050.990(Ft.)
Downstream point/station elevation =  1050.370(Ft.)
Pipe length =   135.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     2.384(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     2.384(CFS)
Normal flow depth in pipe =     9.70(In.)
Flow top width inside pipe =     9.44(In.)
Critical Depth =    7.93(In.)
Pipe flow velocity =      3.50(Ft/s)
Travel time through pipe =    0.64 min.
Time of concentration (TC) =     8.61 min.

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++++
Process from Point/Station        7.000 to Point/Station
8.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------

Along Main Stream number: 1 in normal stream number 1
Stream flow area =       0.680(Ac.)
Runoff from this stream =       2.384(CFS)
Time of concentration =     8.61 min.
Rainfall intensity =     3.783(In/Hr)
Summary of stream data:

Stream    Flow rate       TC              Rainfall Intensity
 No.        (CFS)        (min)                  (In/Hr)


1         2.384       8.61                    3.783
Largest stream flow has longer time of concentration
Qp =       2.384 + sum of
Qp =       2.384

Total of 1 streams to confluence:
Flow rates before confluence point:
        2.384
Area of streams before confluence:
         0.680
Results of confluence:
Total flow rate =       2.384(CFS)
Time of concentration =     8.606 min.
Effective stream area after confluence =       0.680(Ac.)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station        9.000 to Point/Station
10.000
      **** INITIAL AREA EVALUATION ****
-----------------------------------------------------------------------------
      Initial area flow distance =   340.000(Ft.)
      Top (of initial area) elevation =  1056.200(Ft.)
      Bottom (of initial area) elevation =  1052.500(Ft.)
      Difference in elevation =      3.700(Ft.)
      Slope =    0.01088  s(percent)=       1.09
      TC = k(0.300)*[(length^3)/(elevation change)]^0.2
      Initial area time of concentration =    7.627 min.
      Rainfall intensity =       4.042(In/Hr) for a   100.0 year storm
      COMMERCIAL subarea type
      Runoff Coefficient = 0.888
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 2)  =  69.00
      Pervious area fraction =  0.100; Impervious fraction =  0.900
      Initial subarea runoff =       6.751(CFS)
      Total initial stream area =        1.880(Ac.)
      Pervious area fraction = 0.100

      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station       10.000 to Point/Station
8.000
      **** PIPEFLOW TRAVEL TIME (Program estimated size) ****
-----------------------------------------------------------------------------
      Upstream point/station elevation =  1051.000(Ft.)
      Downstream point/station elevation =  1050.370(Ft.)
      Pipe length =    60.00(Ft.)   Manning's N = 0.013
      No. of pipes = 1  Required pipe flow =     6.751(CFS)
      Nearest computed pipe diameter =     18.00(In.)
      Calculated individual pipe flow =     6.751(CFS)
      Normal flow depth in pipe =   10.34(In.)
      Flow top width inside pipe =   17.80(In.)
      Critical Depth =   12.07(In.)
      Pipe flow velocity =      6.43(Ft/s)
      Travel time through pipe =    0.16 min.
      Time of concentration (TC) =     7.78 min.

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++++
      Process from Point/Station       10.000 to Point/Station
8.000
      **** CONFLUENCE OF MINOR STREAMS ****
-----------------------------------------------------------------------------
      Along Main Stream number: 1 in normal stream number 2
      Stream flow area =       1.880(Ac.)
      Runoff from this stream =       6.751(CFS)
      Time of concentration =    7.78 min.
```

```
Rainfall intensity =      3.998(In/Hr)
Summary of stream data:

Stream    Flow rate      TC              Rainfall Intensity
 No.        (CFS)       (min)                 (In/Hr)


1          2.384       8.61                    3.783
2          6.751       7.78                    3.998
Largest stream flow has longer or shorter time of concentration
Qp =       6.751 + sum of
          Qa           Tb/Ta
           2.384 *     0.904 =       2.156
Qp =       8.907

Total of 2 streams to confluence:
Flow rates before confluence point:
        2.384        6.751
Area of streams before confluence:
        0.680        1.880
Results of confluence:
Total flow rate =       8.907(CFS)
Time of concentration =      7.783 min.
Effective stream area after confluence =       2.560(Ac.)


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++++
      Process from Point/Station        8.000 to Point/Station
11.000
      **** PIPEFLOW TRAVEL TIME (Program estimated size) ****
      ------------------------------------------------------------------------
------
      Upstream point/station elevation =  1050.370(Ft.)
      Downstream point/station elevation =  1050.000(Ft.)
      Pipe length  =    30.00(Ft.)   Manning's N = 0.013
      No. of pipes = 1  Required pipe flow  =     8.907(CFS)
      Nearest computed pipe diameter  =     18.00(In.)
      Calculated individual pipe flow  =     8.907(CFS)
      Normal flow depth in pipe =   11.78(In.)
      Flow top width inside pipe =   17.12(In.)
      Critical Depth =   13.85(In.)
      Pipe flow velocity =      7.27(Ft/s)
      Travel time through pipe =    0.07 min.
      Time of concentration (TC) =     7.85 min.


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station        12.000 to Point/Station
11.000
      **** SUBAREA FLOW ADDITION ****
      ------------------------------------------------------------------------
------
      COMMERCIAL subarea type
      Runoff Coefficient = 0.888
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 2)   =  69.00
```

```
      Pervious area fraction =  0.100; Impervious fraction =  0.900
      Time of concentration =     7.85 min.
      Rainfall intensity =      3.978(In/Hr) for a   100.0 year storm
      Subarea runoff =      0.883(CFS) for      0.250(Ac.)
      Total runoff =      9.791(CFS)      Total area =      2.810(Ac.)

      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station       13.000 to Point/Station
11.000
      **** SUBAREA FLOW ADDITION ****
      ------------------------------------------------------------------------
---
      UNDEVELOPED (poor cover) subarea
      Runoff Coefficient = 0.853
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 2)  =  86.00
      Pervious area fraction =  1.000; Impervious fraction =  0.000
      Time of concentration =     7.85 min.
      Rainfall intensity =      3.978(In/Hr) for a   100.0 year storm
      Subarea runoff =      1.664(CFS) for      0.490(Ac.)
      Total runoff =     11.454(CFS)      Total area =      3.300(Ac.)

      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station       14.000 to Point/Station
11.000
      **** IMPROVED CHANNEL TRAVEL TIME ****
      ------------------------------------------------------------------------
---
      Upstream point elevation =  1056.000(Ft.)
      Downstream point elevation =  1047.000(Ft.)
      Channel length thru subarea  =   730.000(Ft.)
      Channel base width       =   40.000(Ft.)
      Slope or 'Z' of left channel bank =  10.000
      Slope or 'Z' of right channel bank =  10.000
      Estimated mean flow rate at midpoint of channel =     19.871(CFS)
      Manning's 'N'    = 0.030
      Maximum depth of channel  =    2.000(Ft.)
      Flow(q) thru subarea =     19.871(CFS)
      Depth of flow =   0.233(Ft.), Average velocity =   2.011(Ft/s)
      Channel flow top width =   44.668(Ft.)
      Flow Velocity =    2.01(Ft/s)
      Travel time  =    6.05 min.
      Time of concentration =   13.90 min.

      Sub-Channel No. 1 Critical depth =      0.193(Ft.)
        '      '        '     Critical flow top width =     43.867(Ft.)
        '      '        '     Critical flow velocity=    2.451(Ft/s)
        '      '        '     Critical flow area =      8.108(Sq.Ft)

       Adding area flow to channel
      UNDEVELOPED (poor cover) subarea
      Runoff Coefficient = 0.837
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
```

```
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 2)  =  86.00
      Pervious area fraction =  1.000; Impervious fraction =  0.000
      Rainfall intensity =      2.906(In/Hr) for a   100.0 year storm
      Subarea runoff =     11.802(CFS) for      4.850(Ac.)
      Total runoff =     23.256(CFS)      Total area =       8.150(Ac.)

      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station       11.000 to Point/Station
5.000
      **** PIPEFLOW TRAVEL TIME (Program estimated size) ****
      ------------------------------------------------------------------------
----
      Upstream point/station elevation =  1046.140(Ft.)
      Downstream point/station elevation =  1046.000(Ft.)
      Pipe length  =    65.00(Ft.)   Manning's N = 0.013
      No. of pipes = 1  Required pipe flow  =    23.256(CFS)
      Nearest computed pipe diameter  =     33.00(In.)
      Calculated individual pipe flow  =    23.256(CFS)
      Normal flow depth in pipe =   25.59(In.)
      Flow top width inside pipe =   27.54(In.)
      Critical Depth =   19.16(In.)
      Pipe flow velocity =      4.70(Ft/s)
      Travel time through pipe =    0.23 min.
      Time of concentration (TC) =    14.13 min.

      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station       15.000 to Point/Station
5.000
      **** SUBAREA FLOW ADDITION ****
      ------------------------------------------------------------------------
----
      COMMERCIAL subarea type
      Runoff Coefficient = 0.885
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 2)  =  69.00
      Pervious area fraction =  0.100; Impervious fraction =  0.900
      Time of concentration =    14.13 min.
      Rainfall intensity =      2.879(In/Hr) for a   100.0 year storm
      Subarea runoff =      0.866(CFS) for      0.340(Ac.)
      Total runoff =     24.122(CFS)      Total area =       8.490(Ac.)

      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station        5.000 to Point/Station
12.000
      **** IMPROVED CHANNEL TRAVEL TIME ****
      ------------------------------------------------------------------------
----
      Upstream point elevation =  1046.200(Ft.)
      Downstream point elevation =  1045.840(Ft.)
      Channel length thru subarea  =    52.000(Ft.)
```

```
Channel base width       =   10.000(Ft.)
Slope or 'Z' of left channel bank =   4.000
Slope or 'Z' of right channel bank =   4.000
Estimated mean flow rate at midpoint of channel =     24.520(CFS)
Manning's 'N'    = 0.030
Maximum depth of channel  =    2.000(Ft.)
Flow(q) thru subarea =     24.520(CFS)
Depth of flow =   0.687(Ft.), Average velocity =   2.798(Ft/s)
Channel flow top width =   15.499(Ft.)
Flow Velocity =    2.80(Ft/s)
Travel time  =    0.31 min.
Time of concentration =   14.44 min.

Sub-Channel No. 1 Critical depth =      0.531(Ft.)
  '      '        '     Critical flow top width =     14.250(Ft.)
  '      '        '     Critical flow velocity=    3.807(Ft/s)
  '      '        '     Critical flow area =      6.441(Sq.Ft)

 Adding area flow to channel
COMMERCIAL subarea type
Runoff Coefficient = 0.884
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Rainfall intensity =      2.845(In/Hr) for a   100.0 year storm
Subarea runoff =      0.705(CFS) for      0.280(Ac.)
Total runoff =     24.826(CFS)      Total area =       8.770(Ac.)


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++++
Process from Point/Station        5.000 to Point/Station
12.000
**** CONFLUENCE OF MAIN STREAMS ****
--------------------------------------------------------------------------------

The following data inside Main Stream is listed:
In Main Stream number: 1
Stream flow area =      8.770(Ac.)
Runoff from this stream =     24.826(CFS)
Time of concentration =   14.44 min.
Rainfall intensity =     2.845(In/Hr)
Summary of stream data:

Stream    Flow rate      TC             Rainfall Intensity
 No.        (CFS)       (min)                 (In/Hr)


1       24.826      14.44                2.845
Largest stream flow has longer time of concentration
Qp =     24.826 + sum of
Qp =     24.826

Total of 1 main streams to confluence:
Flow rates before confluence point:
      24.826
Area of streams before confluence:
        8.770
```

Results of confluence:
Total flow rate = 24.826(CFS)
Time of concentration = 14.442 min.
Effective stream area after confluence = 8.770(Ac.)
End of computations, total study area = 8.770 (Ac.)

```
                    Riverside County Rational Hydrology Program

      CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989 - 1999 Version
6.0
            Rational Hydrology Study        Date: 12/16/10
File:THW10.out
      ---------------------------------------------------------------------
------
       *********   Hydrology Study Control Information **********

       English (in-lb) Units used in input data file

      ---------------------------------------------------------------------
------
      FOR OFFICIAL USE ONLY - CALTRANS San Bernardino - S/N 661
      ---------------------------------------------------------------------
------
      Rational Method Hydrology Program based on
      Riverside County Flood Control & Water Conservation District
      1978 hydrology manual

      Storm event (year) =   10.00 Antecedent Moisture Condition = 2

      Standard intensity-duration curves data (Plate D-4.1)
      For the [ Murrieta,Tmc,Rnch CaNorco ] area used.
      10 year storm 10 minute intensity =  2.360(In/Hr)
      10 year storm 60 minute intensity =  0.880(In/Hr)
      100 year storm 10 minute intensity =  3.480(In/Hr)
      100 year storm 60 minute intensity =  1.300(In/Hr)

      Storm event year =  10.0
      Calculated rainfall intensity data:
      1 hour intensity =  0.880(In/Hr)
      Slope of intensity duration curve = 0.5500



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++++
      Process from Point/Station        6.000 to Point/Station
7.000
      **** INITIAL AREA EVALUATION ****
      ---------------------------------------------------------------------
----
      Initial area flow distance =   390.000(Ft.)
      Top (of initial area) elevation =  1057.000(Ft.)
      Bottom (of initial area) elevation =  1052.500(Ft.)
      Difference in elevation =     4.500(Ft.)
      Slope =    0.01154  s(percent)=       1.15
      TC = k(0.300)*[(length^3)/(elevation change)]^0.2
      Initial area time of concentration =    7.964 min.
      Rainfall intensity =      2.672(In/Hr) for a    10.0 year storm
      COMMERCIAL subarea type
      Runoff Coefficient = 0.884
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
```

```
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      1.605(CFS)
Total initial stream area =        0.680(Ac.)
Pervious area fraction = 0.100

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++++
Process from Point/Station        7.000 to Point/Station
8.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------
Upstream point/station elevation =  1050.990(Ft.)
Downstream point/station elevation =  1050.370(Ft.)
Pipe length  =   135.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     1.605(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     1.605(CFS)
Normal flow depth in pipe =    7.15(In.)
Flow top width inside pipe =   11.78(In.)
Critical Depth =    6.46(In.)
Pipe flow velocity =      3.29(Ft/s)
Travel time through pipe =    0.68 min.
Time of concentration (TC) =     8.65 min.

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++++
Process from Point/Station        7.000 to Point/Station
8.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 1
Stream flow area =       0.680(Ac.)
Runoff from this stream =       1.605(CFS)
Time of concentration =    8.65 min.
Rainfall intensity =     2.554(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                (In/Hr)


1        1.605      8.65                  2.554
Largest stream flow has longer time of concentration
Qp =      1.605 + sum of
Qp =      1.605

Total of 1 streams to confluence:
Flow rates before confluence point:
       1.605
Area of streams before confluence:
         0.680
Results of confluence:
Total flow rate =       1.605(CFS)
Time of concentration =     8.648 min.
Effective stream area after confluence =       0.680(Ac.)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station        9.000 to Point/Station
10.000
      **** INITIAL AREA EVALUATION ****
-------------------------------------------------------------------------------
      Initial area flow distance =    340.000(Ft.)
      Top (of initial area) elevation =  1056.200(Ft.)
      Bottom (of initial area) elevation =  1052.500(Ft.)
      Difference in elevation =      3.700(Ft.)
      Slope =    0.01088  s(percent)=       1.09
      TC = k(0.300)*[(length^3)/(elevation change)]^0.2
      Initial area time of concentration =    7.627 min.
      Rainfall intensity =      2.736(In/Hr) for a    10.0 year storm
      COMMERCIAL subarea type
      Runoff Coefficient = 0.884
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 2)  =  69.00
      Pervious area fraction =  0.100; Impervious fraction =  0.900
      Initial subarea runoff =      4.547(CFS)
      Total initial stream area =        1.880(Ac.)
      Pervious area fraction = 0.100

      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station        10.000 to Point/Station
8.000
      **** PIPEFLOW TRAVEL TIME (Program estimated size) ****
-------------------------------------------------------------------------------
      Upstream point/station elevation =  1051.000(Ft.)
      Downstream point/station elevation =  1050.370(Ft.)
      Pipe length =    60.00(Ft.)  Manning's N = 0.013
      No. of pipes = 1  Required pipe flow  =     4.547(CFS)
      Nearest computed pipe diameter  =     15.00(In.)
      Calculated individual pipe flow  =     4.547(CFS)
      Normal flow depth in pipe =    9.13(In.)
      Flow top width inside pipe =   14.64(In.)
      Critical Depth =   10.37(In.)
      Pipe flow velocity =      5.81(Ft/s)
      Travel time through pipe =    0.17 min.
      Time of concentration (TC) =     7.80 min.

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++++
      Process from Point/Station        10.000 to Point/Station
8.000
      **** CONFLUENCE OF MINOR STREAMS ****
-------------------------------------------------------------------------------
      Along Main Stream number: 1 in normal stream number 2
      Stream flow area =      1.880(Ac.)
      Runoff from this stream =      4.547(CFS)
      Time of concentration =    7.80 min.
```

```
Rainfall intensity =      2.703(In/Hr)
Summary of stream data:

Stream    Flow rate        TC              Rainfall Intensity
 No.        (CFS)         (min)                 (In/Hr)


1          1.605        8.65                    2.554
2          4.547        7.80                    2.703
Largest stream flow has longer or shorter time of concentration
Qp =       4.547 + sum of
          Qa             Tb/Ta
           1.605 *       0.902 =        1.448
Qp =       5.995

Total of 2 streams to confluence:
Flow rates before confluence point:
         1.605        4.547
Area of streams before confluence:
         0.680        1.880
Results of confluence:
Total flow rate =       5.995(CFS)
Time of concentration =      7.799 min.
Effective stream area after confluence =       2.560(Ac.)


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++++
      Process from Point/Station        8.000 to Point/Station
11.000
      **** PIPEFLOW TRAVEL TIME (Program estimated size) ****
      ------------------------------------------------------------------------
------
      Upstream point/station elevation =  1050.370(Ft.)
      Downstream point/station elevation =  1050.000(Ft.)
      Pipe length  =    30.00(Ft.)   Manning's N = 0.013
      No. of pipes = 1  Required pipe flow  =     5.995(CFS)
      Nearest computed pipe diameter  =     15.00(In.)
      Calculated individual pipe flow  =     5.995(CFS)
      Normal flow depth in pipe =   10.48(In.)
      Flow top width inside pipe =   13.77(In.)
      Critical Depth =   11.87(In.)
      Pipe flow velocity =      6.54(Ft/s)
      Travel time through pipe =    0.08 min.
      Time of concentration (TC) =     7.88 min.


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++++
      Process from Point/Station       12.000 to Point/Station
11.000
      **** SUBAREA FLOW ADDITION ****
      ------------------------------------------------------------------------
------
      COMMERCIAL subarea type
      Runoff Coefficient = 0.884
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 2)  =  69.00
```

```
      Pervious area fraction =  0.100; Impervious fraction =  0.900
      Time of concentration =     7.88 min.
      Rainfall intensity =      2.688(In/Hr) for a    10.0 year storm
      Subarea runoff =      0.594(CFS) for      0.250(Ac.)
      Total runoff =      6.588(CFS)      Total area =       2.810(Ac.)

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++++
      Process from Point/Station       13.000 to Point/Station
11.000
      **** SUBAREA FLOW ADDITION ****
      ------------------------------------------------------------------------
      UNDEVELOPED (poor cover) subarea
      Runoff Coefficient = 0.833
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 2)  =  86.00
      Pervious area fraction =  1.000; Impervious fraction =  0.000
      Time of concentration =     7.88 min.
      Rainfall intensity =      2.688(In/Hr) for a    10.0 year storm
      Subarea runoff =      1.097(CFS) for      0.490(Ac.)
      Total runoff =      7.685(CFS)      Total area =       3.300(Ac.)

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++++
      Process from Point/Station       14.000 to Point/Station
11.000
      **** IMPROVED CHANNEL TRAVEL TIME ****
      ------------------------------------------------------------------------
      Upstream point elevation =  1056.000(Ft.)
      Downstream point elevation =  1047.000(Ft.)
      Channel length thru subarea  =   730.000(Ft.)
      Channel base width       =   40.000(Ft.)
      Slope or 'Z' of left channel bank =  10.000
      Slope or 'Z' of right channel bank =  10.000
      Estimated mean flow rate at midpoint of channel =     13.333(CFS)
      Manning's 'N'    = 0.030
      Maximum depth of channel  =    2.000(Ft.)
      Flow(q) thru subarea =     13.333(CFS)
      Depth of flow =   0.184(Ft.), Average velocity =   1.730(Ft/s)
      Channel flow top width =   43.684(Ft.)
      Flow Velocity =    1.73(Ft/s)
      Travel time  =    7.03 min.
      Time of concentration =   14.91 min.

      Sub-Channel No. 1 Critical depth =      0.148(Ft.)
        '     '       '     Critical flow top width =     42.969(Ft.)
        '     '       '     Critical flow velocity=    2.165(Ft/s)
        '     '       '     Critical flow area =      6.158(Sq.Ft)

       Adding area flow to channel
      UNDEVELOPED (poor cover) subarea
      Runoff Coefficient = 0.807
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
```

```
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  86.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Rainfall intensity =      1.893(In/Hr) for a    10.0 year storm
Subarea runoff =      7.411(CFS) for      4.850(Ac.)
Total runoff =     15.097(CFS)      Total area =       8.150(Ac.)


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++++
Process from Point/Station       11.000 to Point/Station
5.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------

Upstream point/station elevation =  1046.140(Ft.)
Downstream point/station elevation =  1046.000(Ft.)
Pipe length  =    65.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    15.097(CFS)
Nearest computed pipe diameter  =    27.00(In.)
Calculated individual pipe flow  =    15.097(CFS)
Normal flow depth in pipe =   23.63(In.)
Flow top width inside pipe =   17.86(In.)
Critical Depth =   16.24(In.)
Pipe flow velocity =      4.09(Ft/s)
Travel time through pipe =    0.26 min.
Time of concentration (TC) =    15.17 min.


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++++
Process from Point/Station       15.000 to Point/Station
5.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------

COMMERCIAL subarea type
Runoff Coefficient = 0.878
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Time of concentration =   15.17 min.
Rainfall intensity =      1.874(In/Hr) for a    10.0 year storm
Subarea runoff =      0.560(CFS) for      0.340(Ac.)
Total runoff =     15.656(CFS)      Total area =       8.490(Ac.)


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Process from Point/Station        5.000 to Point/Station
12.000
**** IMPROVED CHANNEL TRAVEL TIME ****
------------------------------------------------------------------------------

Upstream point elevation =  1046.200(Ft.)
Downstream point elevation =  1045.840(Ft.)
Channel length thru subarea  =    52.000(Ft.)
```

```
Channel base width       =    10.000(Ft.)
Slope or 'Z' of left channel bank =    4.000
Slope or 'Z' of right channel bank =    4.000
Estimated mean flow rate at midpoint of channel =      15.915(CFS)
Manning's 'N'    = 0.030
Maximum depth of channel  =     2.000(Ft.)
Flow(q) thru subarea =      15.915(CFS)
Depth of flow =    0.538(Ft.), Average velocity =    2.432(Ft/s)
Channel flow top width =    14.308(Ft.)
Flow Velocity =     2.43(Ft/s)
Travel time  =     0.36 min.
Time of concentration =    15.53 min.

Sub-Channel No. 1 Critical depth =       0.406(Ft.)
  '      '       '     Critical flow top width =      13.250(Ft.)
  '      '       '     Critical flow velocity=     3.370(Ft/s)
  '      '       '     Critical flow area =       4.723(Sq.Ft)

 Adding area flow to channel
COMMERCIAL subarea type
Runoff Coefficient = 0.878
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Rainfall intensity =       1.851(In/Hr) for a    10.0 year storm
Subarea runoff =       0.455(CFS) for       0.280(Ac.)
Total runoff =      16.111(CFS)      Total area =       8.770(Ac.)


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++++
Process from Point/Station        5.000 to Point/Station
12.000
**** CONFLUENCE OF MAIN STREAMS ****
--------------------------------------------------------------------------------

The following data inside Main Stream is listed:
In Main Stream number: 1
Stream flow area =       8.770(Ac.)
Runoff from this stream =      16.111(CFS)
Time of concentration =    15.53 min.
Rainfall intensity =      1.851(In/Hr)
Summary of stream data:

Stream    Flow rate       TC              Rainfall Intensity
 No.        (CFS)        (min)                  (In/Hr)


1        16.111      15.53                 1.851
Largest stream flow has longer time of concentration
Qp =      16.111 + sum of
Qp =      16.111

Total of 1 main streams to confluence:
Flow rates before confluence point:
      16.111
Area of streams before confluence:
        8.770
```

Results of confluence:
Total flow rate = 16.111(CFS)
Time of concentration = 15.531 min.
Effective stream area after confluence = 8.770(Ac.)
End of computations, total study area = 8.770 (Ac.)

```
                    Riverside County Rational Hydrology Program

      CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 1999 Version
6.0
            Rational Hydrology Study        Date: 12/16/10
File:THW2.out
      ---------------------------------------------------------------------
------
       *********   Hydrology Study Control Information **********

       English (in-lb) Units used in input data file

      ---------------------------------------------------------------------
------
      FOR OFFICIAL USE ONLY - CALTRANS San Bernardino - S/N 661
      ---------------------------------------------------------------------
------
      Rational Method Hydrology Program based on
      Riverside County Flood Control & Water Conservation District
      1978 hydrology manual

      Storm event (year) =    2.00 Antecedent Moisture Condition = 2

      Standard intensity-duration curves data (Plate D-4.1)
      For the [ Murrieta,Tmc,Rnch CaNorco ] area used.
      10 year storm 10 minute intensity =  2.360(In/Hr)
      10 year storm 60 minute intensity =  0.880(In/Hr)
      100 year storm 10 minute intensity =  3.480(In/Hr)
      100 year storm 60 minute intensity =  1.300(In/Hr)

      Storm event year =   2.0
      Calculated rainfall intensity data:
      1 hour intensity =  0.586(In/Hr)
      Slope of intensity duration curve = 0.5500



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++++
      Process from Point/Station        6.000 to Point/Station
7.000
      **** INITIAL AREA EVALUATION ****
      ---------------------------------------------------------------------
----
      Initial area flow distance =   390.000(Ft.)
      Top (of initial area) elevation =  1057.000(Ft.)
      Bottom (of initial area) elevation =  1052.500(Ft.)
      Difference in elevation =     4.500(Ft.)
      Slope =    0.01154  s(percent)=       1.15
      TC = k(0.300)*[(length^3)/(elevation change)]^0.2
      Initial area time of concentration =    7.964 min.
      Rainfall intensity =      1.781(In/Hr) for a     2.0 year storm
      COMMERCIAL subarea type
      Runoff Coefficient = 0.877
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
```

```
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      1.062(CFS)
Total initial stream area =        0.680(Ac.)
Pervious area fraction = 0.100

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++++
Process from Point/Station        7.000 to Point/Station
8.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =  1050.990(Ft.)
Downstream point/station elevation =  1050.370(Ft.)
Pipe length  =   135.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     1.062(CFS)
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =     1.062(CFS)
Normal flow depth in pipe =     6.98(In.)
Flow top width inside pipe =     7.50(In.)
Critical Depth =     5.68(In.)
Pipe flow velocity =      2.89(Ft/s)
Travel time through pipe =     0.78 min.
Time of concentration (TC) =      8.74 min.

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++++
Process from Point/Station        7.000 to Point/Station
8.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 1
Stream flow area =       0.680(Ac.)
Runoff from this stream =       1.062(CFS)
Time of concentration =     8.74 min.
Rainfall intensity =      1.692(In/Hr)
Summary of stream data:

Stream    Flow rate       TC             Rainfall Intensity
 No.        (CFS)        (min)                 (In/Hr)


1         1.062       8.74                    1.692
Largest stream flow has longer time of concentration
Qp =       1.062 + sum of
Qp =       1.062

Total of 1 streams to confluence:
Flow rates before confluence point:
        1.062
Area of streams before confluence:
         0.680
Results of confluence:
Total flow rate =       1.062(CFS)
Time of concentration =      8.743 min.
Effective stream area after confluence =       0.680(Ac.)
```

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++++
      Process from Point/Station        9.000 to Point/Station
10.000
      **** INITIAL AREA EVALUATION ****
      ------------------------------------------------------------------------
      Initial area flow distance =   340.000(Ft.)
      Top (of initial area) elevation =  1056.200(Ft.)
      Bottom (of initial area) elevation =  1052.500(Ft.)
      Difference in elevation =     3.700(Ft.)
      Slope =    0.01088  s(percent)=       1.09
      TC = k(0.300)*[(length^3)/(elevation change)]^0.2
      Initial area time of concentration =    7.627 min.
      Rainfall intensity =      1.823(In/Hr) for a     2.0 year storm
      COMMERCIAL subarea type
      Runoff Coefficient = 0.878
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 2)  =  69.00
      Pervious area fraction =  0.100; Impervious fraction =  0.900
      Initial subarea runoff =     3.009(CFS)
      Total initial stream area =        1.880(Ac.)
      Pervious area fraction = 0.100

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++++
      Process from Point/Station       10.000 to Point/Station
8.000
      **** PIPEFLOW TRAVEL TIME (Program estimated size) ****
      ------------------------------------------------------------------------
      Upstream point/station elevation =  1051.000(Ft.)
      Downstream point/station elevation =  1050.370(Ft.)
      Pipe length =    60.00(Ft.)   Manning's N = 0.013
      No. of pipes = 1  Required pipe flow =     3.009(CFS)
      Nearest computed pipe diameter =     12.00(In.)
      Calculated individual pipe flow =     3.009(CFS)
      Normal flow depth in pipe =    8.30(In.)
      Flow top width inside pipe =   11.09(In.)
      Critical Depth =    8.92(In.)
      Pipe flow velocity =      5.19(Ft/s)
      Travel time through pipe =    0.19 min.
      Time of concentration (TC) =     7.82 min.

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++++
      Process from Point/Station       10.000 to Point/Station
8.000
      **** CONFLUENCE OF MINOR STREAMS ****
      ------------------------------------------------------------------------
      Along Main Stream number: 1 in normal stream number 2
      Stream flow area =      1.880(Ac.)
      Runoff from this stream =      3.009(CFS)
      Time of concentration =    7.82 min.
```

```
Rainfall intensity =      1.799(In/Hr)
Summary of stream data:

Stream   Flow rate       TC              Rainfall Intensity
 No.       (CFS)        (min)                 (In/Hr)


1         1.062       8.74                    1.692
2         3.009       7.82                    1.799
Largest stream flow has longer or shorter time of concentration
Qp =      3.009 + sum of
         Qa           Tb/Ta
          1.062 *     0.894 =       0.950
Qp =      3.959

Total of 2 streams to confluence:
Flow rates before confluence point:
        1.062        3.009
Area of streams before confluence:
        0.680        1.880
Results of confluence:
Total flow rate =       3.959(CFS)
Time of concentration =      7.820 min.
Effective stream area after confluence =       2.560(Ac.)


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++++
Process from Point/Station        8.000 to Point/Station
11.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =  1050.370(Ft.)
Downstream point/station elevation =  1050.000(Ft.)
Pipe length  =    30.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    3.959(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =    3.959(CFS)
Normal flow depth in pipe =   12.00(In.)
Flow top width inside pipe =    0.00(In.)
Critical Depth =   10.13(In.)
Pipe flow velocity =       5.04(Ft/s)
Travel time through pipe =    0.10 min.
Time of concentration (TC) =     7.92 min.


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++++
Process from Point/Station       12.000 to Point/Station
11.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
COMMERCIAL subarea type
Runoff Coefficient = 0.877
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
```

```
      Pervious area fraction =  0.100; Impervious fraction =  0.900
      Time of concentration =     7.92 min.
      Rainfall intensity =      1.786(In/Hr) for a     2.0 year storm
      Subarea runoff =      0.392(CFS) for      0.250(Ac.)
      Total runoff =      4.351(CFS)      Total area =       2.810(Ac.)


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++++
      Process from Point/Station       13.000 to Point/Station
11.000
      **** SUBAREA FLOW ADDITION ****
      ------------------------------------------------------------------------
---
      UNDEVELOPED (poor cover) subarea
      Runoff Coefficient = 0.802
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 2)  =  86.00
      Pervious area fraction =  1.000; Impervious fraction =  0.000
      Time of concentration =     7.92 min.
      Rainfall intensity =      1.786(In/Hr) for a     2.0 year storm
      Subarea runoff =      0.702(CFS) for      0.490(Ac.)
      Total runoff =      5.053(CFS)      Total area =       3.300(Ac.)


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++++
      Process from Point/Station       14.000 to Point/Station
11.000
      **** IMPROVED CHANNEL TRAVEL TIME ****
      ------------------------------------------------------------------------
---
      Upstream point elevation =  1056.000(Ft.)
      Downstream point elevation =  1047.000(Ft.)
      Channel length thru subarea  =   730.000(Ft.)
      Channel base width       =   40.000(Ft.)
      Slope or 'Z' of left channel bank =  10.000
      Slope or 'Z' of right channel bank =  10.000
      Estimated mean flow rate at midpoint of channel =      8.767(CFS)
      Manning's 'N'    = 0.030
      Maximum depth of channel  =    2.000(Ft.)
      Flow(q) thru subarea =      8.767(CFS)
      Depth of flow =   0.144(Ft.), Average velocity =   1.474(Ft/s)
      Channel flow top width =   42.871(Ft.)
      Flow Velocity =    1.47(Ft/s)
      Travel time  =    8.26 min.
      Time of concentration =   16.17 min.

      Sub-Channel No. 1 Critical depth =      0.113(Ft.)
        '     '       '     Critical flow top width =     42.266(Ft.)
        '     '       '     Critical flow velocity=    1.881(Ft/s)
        '     '       '     Critical flow area =      4.660(Sq.Ft)

       Adding area flow to channel
      UNDEVELOPED (poor cover) subarea
      Runoff Coefficient = 0.763
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
```

```
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  86.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Rainfall intensity =      1.206(In/Hr) for a     2.0 year storm
Subarea runoff =      4.461(CFS) for      4.850(Ac.)
Total runoff =      9.515(CFS)      Total area =      8.150(Ac.)

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++++
Process from Point/Station       11.000 to Point/Station
5.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------

Upstream point/station elevation =  1046.140(Ft.)
Downstream point/station elevation =  1046.000(Ft.)
Pipe length  =    65.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    9.515(CFS)
Nearest computed pipe diameter  =    24.00(In.)
Calculated individual pipe flow  =    9.515(CFS)
Normal flow depth in pipe =  17.91(In.)
Flow top width inside pipe =  20.89(In.)
Critical Depth =  13.22(In.)
Pipe flow velocity =      3.79(Ft/s)
Travel time through pipe =    0.29 min.
Time of concentration (TC) =    16.46 min.

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++++
Process from Point/Station       15.000 to Point/Station
5.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------

COMMERCIAL subarea type
Runoff Coefficient = 0.870
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Time of concentration =  16.46 min.
Rainfall intensity =      1.194(In/Hr) for a     2.0 year storm
Subarea runoff =      0.353(CFS) for      0.340(Ac.)
Total runoff =      9.868(CFS)      Total area =      8.490(Ac.)

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++++
Process from Point/Station       5.000 to Point/Station
12.000
**** IMPROVED CHANNEL TRAVEL TIME ****
------------------------------------------------------------------------------

Upstream point elevation =  1046.200(Ft.)
Downstream point elevation =  1045.840(Ft.)
Channel length thru subarea  =    52.000(Ft.)
```

```
Channel base width       =   10.000(Ft.)
Slope or 'Z' of left channel bank =   4.000
Slope or 'Z' of right channel bank =   4.000
Estimated mean flow rate at midpoint of channel =     10.031(CFS)
Manning's 'N'    = 0.030
Maximum depth of channel  =    2.000(Ft.)
Flow(q) thru subarea =     10.031(CFS)
Depth of flow =   0.413(Ft.), Average velocity =   2.083(Ft/s)
Channel flow top width =   13.306(Ft.)
Flow Velocity =    2.08(Ft/s)
Travel time  =    0.42 min.
Time of concentration =   16.88 min.

Sub-Channel No. 1 Critical depth =      0.301(Ft.)
  '      '       '     Critical flow top width =     12.406(Ft.)
  '      '       '     Critical flow velocity=    2.977(Ft/s)
  '      '       '     Critical flow area =      3.370(Sq.Ft)

 Adding area flow to channel
COMMERCIAL subarea type
Runoff Coefficient = 0.870
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  69.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Rainfall intensity =      1.178(In/Hr) for a     2.0 year storm
Subarea runoff =      0.287(CFS) for      0.280(Ac.)
Total runoff =     10.155(CFS)      Total area =       8.770(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station        5.000 to Point/Station
12.000
      **** CONFLUENCE OF MAIN STREAMS ****
      ------------------------------------------------------------------------
------
      The following data inside Main Stream is listed:
      In Main Stream number: 1
      Stream flow area =      8.770(Ac.)
      Runoff from this stream =     10.155(CFS)
      Time of concentration =   16.88 min.
      Rainfall intensity =     1.178(In/Hr)
      Summary of stream data:

      Stream   Flow rate      TC            Rainfall Intensity
       No.       (CFS)       (min)                 (In/Hr)


      1       10.155     16.88                1.178
      Largest stream flow has longer time of concentration
      Qp =     10.155 + sum of
      Qp =     10.155

      Total of 1 main streams to confluence:
      Flow rates before confluence point:
            10.155
      Area of streams before confluence:
             8.770
```

Results of confluence:
Total flow rate = 10.155(CFS)
Time of concentration = 16.877 min.
Effective stream area after confluence = 8.770(Ac.)
End of computations, total study area = 8.770 (Ac.)

```
                    Riverside County Rational Hydrology Program

      CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 1999 Version
6.0
            Rational Hydrology Study        Date: 12/02/10
File:LineAE100.out
      ---------------------------------------------------------------------
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       *********   Hydrology Study Control Information **********

       English (in-lb) Units used in input data file

      ---------------------------------------------------------------------
------
      FOR OFFICIAL USE ONLY - CALTRANS San Bernardino - S/N 661
      ---------------------------------------------------------------------
------
      Rational Method Hydrology Program based on
      Riverside County Flood Control & Water Conservation District
      1978 hydrology manual

      Storm event (year) =  100.00 Antecedent Moisture Condition = 2

      Standard intensity-duration curves data (Plate D-4.1)
      For the [ Murrieta,Tmc,Rnch CaNorco ] area used.
      10 year storm 10 minute intensity =  2.360(In/Hr)
      10 year storm 60 minute intensity =  0.880(In/Hr)
      100 year storm 10 minute intensity =  3.480(In/Hr)
      100 year storm 60 minute intensity =  1.300(In/Hr)

      Storm event year = 100.0
      Calculated rainfall intensity data:
      1 hour intensity =  1.300(In/Hr)
      Slope of intensity duration curve = 0.5500




      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station      144.000 to Point/Station
145.000
      **** USER DEFINED FLOW INFORMATION AT A POINT ****
      ---------------------------------------------------------------------
____
      Rainfall intensity =      2.402(In/Hr) for a   100.0 year storm
      COMMERCIAL subarea type
      Runoff Coefficient = 0.882
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 2)  =  69.00
      Pervious area fraction =  0.100; Impervious fraction =  0.900
      User specified values are as follows:
      TC =  19.65 min.  Rain intensity =      2.40(In/Hr)
      Total area =        13.45(Ac.)  Total runoff =     32.20(CFS)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station      144.000 to Point/Station
145.000
      **** CONFLUENCE OF MINOR STREAMS ****
      ------------------------------------------------------------------------
----
      Along Main Stream number: 1 in normal stream number 1
      Stream flow area =     13.450(Ac.)
      Runoff from this stream =     32.205(CFS)
      Time of concentration =   19.65 min.
      Rainfall intensity =     2.402(In/Hr)
      Summary of stream data:

      Stream    Flow rate       TC             Rainfall Intensity
       No.        (CFS)        (min)                  (In/Hr)


      1       32.205     19.65                  2.402
      Largest stream flow has longer time of concentration
      Qp =     32.205 + sum of
      Qp =     32.205

      Total of 1 streams to confluence:
      Flow rates before confluence point:
            32.205
      Area of streams before confluence:
             13.450
      Results of confluence:
      Total flow rate =     32.205(CFS)
      Time of concentration =    19.650 min.
      Effective stream area after confluence =     13.450(Ac.)


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station      323.000 to Point/Station
145.000
      **** USER DEFINED FLOW INFORMATION AT A POINT ****
      ------------------------------------------------------------------------
----
      Rainfall intensity =      3.585(In/Hr) for a   100.0 year storm
      COMMERCIAL subarea type
      Runoff Coefficient = 0.887
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 2)  =  69.00
      Pervious area fraction =  0.100; Impervious fraction =  0.900
      User specified values are as follows:
      TC =   9.49 min.  Rain intensity =       3.59(In/Hr)
      Total area =         9.84(Ac.)  Total runoff =     35.40(CFS)


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      Process from Point/Station      323.000 to Point/Station
145.000
      **** CONFLUENCE OF MINOR STREAMS ****
      ------------------------------------------------------------------------
```

```
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      9.840(Ac.)
Runoff from this stream =      35.403(CFS)
Time of concentration =     9.49 min.
Rainfall intensity =      3.585(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)


1       32.205     19.65                  2.402
2       35.403      9.49                  3.585
Largest stream flow has longer or shorter time of concentration
Qp =      35.403 + sum of
        Qa          Tb/Ta
        32.205 *    0.483 =      15.549
Qp =      50.952

Total of 2 streams to confluence:
Flow rates before confluence point:
      32.205      35.403
Area of streams before confluence:
       13.450        9.840
Results of confluence:
Total flow rate =      50.952(CFS)
Time of concentration =      9.487 min.
Effective stream area after confluence =      23.290(Ac.)


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++++
Process from Point/Station      145.000 to Point/Station
326.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------

Upstream point/station elevation =  1044.580(Ft.)
Downstream point/station elevation =  1044.550(Ft.)
Pipe length  =    10.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    50.952(CFS)
Nearest computed pipe diameter  =     42.00(In.)
Calculated individual pipe flow  =    50.952(CFS)
Normal flow depth in pipe =   31.88(In.)
Flow top width inside pipe =   35.93(In.)
Critical Depth =   26.77(In.)
Pipe flow velocity =      6.50(Ft/s)
Travel time through pipe =    0.03 min.
Time of concentration (TC) =     9.51 min.


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++++
Process from Point/Station      145.000 to Point/Station
326.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------

Along Main Stream number: 1 in normal stream number 1
Stream flow area =     23.290(Ac.)
```

```
Runoff from this stream =     50.952(CFS)
Time of concentration =    9.51 min.
Rainfall intensity =     3.580(In/Hr)
Summary of stream data:

Stream    Flow rate       TC              Rainfall Intensity
 No.        (CFS)        (min)                  (In/Hr)


1        50.952       9.51                    3.580
Largest stream flow has longer time of concentration
Qp =      50.952 + sum of
Qp =      50.952

Total of 1 streams to confluence:
Flow rates before confluence point:
      50.952
Area of streams before confluence:
       23.290
Results of confluence:
Total flow rate =      50.952(CFS)
Time of concentration =      9.513 min.
Effective stream area after confluence =      23.290(Ac.)


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++++
      Process from Point/Station      324.000 to Point/Station
325.000
      **** INITIAL AREA EVALUATION ****
      ------------------------------------------------------------------------
----
      Initial area flow distance =    420.000(Ft.)
      Top (of initial area) elevation =  1056.000(Ft.)
      Bottom (of initial area) elevation =  1054.000(Ft.)
      Difference in elevation =     2.000(Ft.)
      Slope =    0.00476  s(percent)=       0.48
      TC = k(0.300)*[(length^3)/(elevation change)]^0.2
      Initial area time of concentration =    9.792 min.
      Rainfall intensity =      3.523(In/Hr) for a   100.0 year storm
      COMMERCIAL subarea type
      Runoff Coefficient = 0.887
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 2)  =  69.00
      Pervious area fraction =  0.100; Impervious fraction =  0.900
      Initial subarea runoff =      2.281(CFS)
      Total initial stream area =        0.730(Ac.)
      Pervious area fraction = 0.100


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station      325.000 to Point/Station
326.000
      **** PIPEFLOW TRAVEL TIME (User specified size) ****
      ------------------------------------------------------------------------
----
      Upstream point/station elevation =  1050.500(Ft.)
```

```
      Downstream point/station elevation =  1044.550(Ft.)
      Pipe length  =    70.00(Ft.)   Manning's N = 0.013
      No. of pipes = 1  Required pipe flow  =     2.281(CFS)
      Given pipe size =     12.00(In.)
      Calculated individual pipe flow  =     2.281(CFS)
      Normal flow depth in pipe =    3.82(In.)
      Flow top width inside pipe =   11.18(In.)
      Critical Depth =    7.75(In.)
      Pipe flow velocity =     10.60(Ft/s)
      Travel time through pipe =    0.11 min.
      Time of concentration (TC) =     9.90 min.


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station      325.000 to Point/Station
326.000
      **** CONFLUENCE OF MINOR STREAMS ****
      ------------------------------------------------------------------------
---
      Along Main Stream number: 1 in normal stream number 2
      Stream flow area =      0.730(Ac.)
      Runoff from this stream =      2.281(CFS)
      Time of concentration =    9.90 min.
      Rainfall intensity =     3.502(In/Hr)
      Summary of stream data:

      Stream    Flow rate       TC             Rainfall Intensity
       No.        (CFS)        (min)                  (In/Hr)


      1        50.952       9.51                    3.580
      2         2.281       9.90                    3.502
      Largest stream flow has longer or shorter time of concentration
      Qp =     50.952 + sum of
              Qa           Tb/Ta
               2.281 *     0.961 =      2.192
      Qp =     53.143

      Total of 2 streams to confluence:
      Flow rates before confluence point:
            50.952       2.281
      Area of streams before confluence:
             23.290        0.730
      Results of confluence:
      Total flow rate =     53.143(CFS)
      Time of concentration =     9.513 min.
      Effective stream area after confluence =     24.020(Ac.)


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++++
      Process from Point/Station      326.000 to Point/Station
327.000
      **** PIPEFLOW TRAVEL TIME (Program estimated size) ****
      ------------------------------------------------------------------------
---
      Upstream point/station elevation =  1044.550(Ft.)
      Downstream point/station elevation =  1044.470(Ft.)
      Pipe length  =   135.47(Ft.)   Manning's N = 0.013
      No. of pipes = 1  Required pipe flow  =    53.143(CFS)
```

```
      Nearest computed pipe diameter  =     57.00(In.)
      Calculated individual pipe flow  =    53.143(CFS)
      Normal flow depth in pipe =   44.91(In.)
      Flow top width inside pipe =   46.61(In.)
      Critical Depth =   24.89(In.)
      Pipe flow velocity =      3.55(Ft/s)
      Travel time through pipe =    0.64 min.
      Time of concentration (TC) =    10.15 min.


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station      326.000 to Point/Station
327.000
      **** CONFLUENCE OF MINOR STREAMS ****
      ------------------------------------------------------------------------
---
      Along Main Stream number: 1 in normal stream number 1
      Stream flow area =     24.020(Ac.)
      Runoff from this stream =     53.143(CFS)
      Time of concentration =   10.15 min.
      Rainfall intensity =     3.455(In/Hr)
      Summary of stream data:

      Stream   Flow rate      TC            Rainfall Intensity
       No.       (CFS)       (min)                 (In/Hr)


      1       53.143     10.15                  3.455
      Largest stream flow has longer time of concentration
      Qp =     53.143 + sum of
      Qp =     53.143

      Total of 1 streams to confluence:
      Flow rates before confluence point:
            53.143
      Area of streams before confluence:
             24.020
      Results of confluence:
      Total flow rate =     53.143(CFS)
      Time of concentration =    10.149 min.
      Effective stream area after confluence =     24.020(Ac.)
      End of computations, total study area =          24.020 (Ac.)
```

```
                    Riverside County Rational Hydrology Program

      CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 1999 Version
6.0
            Rational Hydrology Study        Date: 12/16/10
File:LineAE10.out
      ------------------------------------------------------------------------
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       *********   Hydrology Study Control Information **********

       English (in-lb) Units used in input data file

      ------------------------------------------------------------------------
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      FOR OFFICIAL USE ONLY - CALTRANS San Bernardino - S/N 661
      ------------------------------------------------------------------------
------
      Rational Method Hydrology Program based on
      Riverside County Flood Control & Water Conservation District
      1978 hydrology manual

      Storm event (year) =   10.00 Antecedent Moisture Condition = 2

      Standard intensity-duration curves data (Plate D-4.1)
      For the [ Murrieta,Tmc,Rnch CaNorco ] area used.
      10 year storm 10 minute intensity =  2.360(In/Hr)
      10 year storm 60 minute intensity =  0.880(In/Hr)
      100 year storm 10 minute intensity =  3.480(In/Hr)
      100 year storm 60 minute intensity =  1.300(In/Hr)

      Storm event year =  10.0
      Calculated rainfall intensity data:
      1 hour intensity =  0.880(In/Hr)
      Slope of intensity duration curve = 0.5500



      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station      144.000 to Point/Station
145.000
      **** USER DEFINED FLOW INFORMATION AT A POINT ****
      ------------------------------------------------------------------------
----
      Rainfall intensity =      1.608(In/Hr) for a    10.0 year storm
      COMMERCIAL subarea type
      Runoff Coefficient = 0.876
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 2)  =  69.00
      Pervious area fraction =  0.100; Impervious fraction =  0.900
      User specified values are as follows:
      TC =  20.06 min.  Rain intensity =       1.61(In/Hr)
      Total area =        13.45(Ac.)  .Total runoff =     21.63(CFS)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station       144.000 to Point/Station
145.000
      **** CONFLUENCE OF MINOR STREAMS ****
      ------------------------------------------------------------------------
---
      Along Main Stream number: 1 in normal stream number 1
      Stream flow area =      13.450(Ac.)
      Runoff from this stream =      21.626(CFS)
      Time of concentration =   20.06 min.
      Rainfall intensity =     1.608(In/Hr)
      Summary of stream data:

      Stream    Flow rate       TC            Rainfall Intensity
       No.        (CFS)        (min)                 (In/Hr)


      1        21.626      20.06                  1.608
      Largest stream flow has longer time of concentration
      Qp =      21.626 + sum of
      Qp =      21.626

      Total of 1 streams to confluence:
      Flow rates before confluence point:
            21.626
      Area of streams before confluence:
             13.450
      Results of confluence:
      Total flow rate =      21.626(CFS)
      Time of concentration =     20.060 min.
      Effective stream area after confluence =      13.450(Ac.)


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station       323.000 to Point/Station
145.000
      **** USER DEFINED FLOW INFORMATION AT A POINT ****
      ------------------------------------------------------------------------
---
      Rainfall intensity =      2.381(In/Hr) for a     10.0 year storm
      COMMERCIAL subarea type
      Runoff Coefficient = 0.882
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 2)  =  69.00
      Pervious area fraction =  0.100; Impervious fraction =  0.900
      User specified values are as follows:
      TC =   9.82 min.  Rain intensity =       2.38(In/Hr)
      Total area =         9.84(Ac.)  Total runoff =      23.74(CFS)


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station       323.000 to Point/Station
145.000
      **** CONFLUENCE OF MINOR STREAMS ****
      ------------------------------------------------------------------------
```

```
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      9.840(Ac.)
Runoff from this stream =     23.738(CFS)
Time of concentration =    9.82 min.
Rainfall intensity =     2.381(In/Hr)
Summary of stream data:

Stream    Flow rate       TC             Rainfall Intensity
 No.        (CFS)        (min)                  (In/Hr)


1        21.626      20.06                   1.608
2        23.738       9.82                   2.381
Largest stream flow has longer or shorter time of concentration
Qp =      23.738 + sum of
         Qa           Tb/Ta
         21.626 *     0.490 =      10.587
Qp =      34.325

Total of 2 streams to confluence:
Flow rates before confluence point:
      21.626       23.738
Area of streams before confluence:
       13.450        9.840
Results of confluence:
Total flow rate =      34.325(CFS)
Time of concentration =      9.820 min.
Effective stream area after confluence =      23.290(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
Process from Point/Station       145.000 to Point/Station
326.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------

Upstream point/station elevation =  1044.580(Ft.)
Downstream point/station elevation =  1044.550(Ft.)
Pipe length  =    10.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    34.325(CFS)
Nearest computed pipe diameter  =     36.00(In.)
Calculated individual pipe flow  =    34.325(CFS)
Normal flow depth in pipe =   27.75(In.)
Flow top width inside pipe =   30.26(In.)
Critical Depth =   22.84(In.)
Pipe flow velocity =      5.88(Ft/s)
Travel time through pipe =    0.03 min.
Time of concentration (TC) =     9.85 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
Process from Point/Station       145.000 to Point/Station
326.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------

Along Main Stream number: 1 in normal stream number 1
Stream flow area =     23.290(Ac.)
```

```
      Downstream point/station elevation =  1044.550(Ft.)
      Pipe length  =    70.00(Ft.)   Manning's N = 0.013
      No. of pipes = 1  Required pipe flow  =     1.535(CFS)
      Given pipe size =     12.00(In.)
      Calculated individual pipe flow  =     1.535(CFS)
      Normal flow depth in pipe =    3.12(In.)
      Flow top width inside pipe =   10.52(In.)
      Critical Depth =    6.31(In.)
      Pipe flow velocity =      9.47(Ft/s)
      Travel time through pipe =    0.12 min.
      Time of concentration (TC) =     9.92 min.


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station       325.000 to Point/Station
326.000
      **** CONFLUENCE OF MINOR STREAMS ****
      ------------------------------------------------------------------------
---
      Along Main Stream number: 1 in normal stream number 2
      Stream flow area =      0.730(Ac.)
      Runoff from this stream =      1.535(CFS)
      Time of concentration =    9.92 min.
      Rainfall intensity =     2.369(In/Hr)
      Summary of stream data:

      Stream    Flow rate       TC              Rainfall Intensity
       No.        (CFS)        (min)                 (In/Hr)


      1        34.325       9.85                    2.377
      2         1.535       9.92                    2.369
      Largest stream flow has longer or shorter time of concentration
      Qp =     34.325 + sum of
              Qa            Tb/Ta
               1.535 *      0.993 =       1.525
      Qp =     35.850

      Total of 2 streams to confluence:
      Flow rates before confluence point:
            34.325        1.535
      Area of streams before confluence:
             23.290         0.730
      Results of confluence:
      Total flow rate =     35.850(CFS)
      Time of concentration =     9.848 min.
      Effective stream area after confluence =     24.020(Ac.)


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station       326.000 to Point/Station
327.000
      **** PIPEFLOW TRAVEL TIME (Program estimated size) ****
      ------------------------------------------------------------------------
---
      Upstream point/station elevation =  1044.550(Ft.)
      Downstream point/station elevation =  1044.470(Ft.)
      Pipe length  =   135.47(Ft.)   Manning's N = 0.013
      No. of pipes = 1  Required pipe flow  =    35.850(CFS)
```

```
      Nearest computed pipe diameter  =     48.00(In.)
      Calculated individual pipe flow  =    35.850(CFS)
      Normal flow depth in pipe =   40.59(In.)
      Flow top width inside pipe =   34.68(In.)
      Critical Depth =   21.38(In.)
      Pipe flow velocity =      3.16(Ft/s)
      Travel time through pipe =    0.71 min.
      Time of concentration (TC) =    10.56 min.


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station       326.000 to Point/Station
327.000
      **** CONFLUENCE OF MINOR STREAMS ****
      ------------------------------------------------------------------------
------
      Along Main Stream number: 1 in normal stream number 1
      Stream flow area =     24.020(Ac.)
      Runoff from this stream =     35.850(CFS)
      Time of concentration =   10.56 min.
      Rainfall intensity =     2.288(In/Hr)
      Summary of stream data:

      Stream    Flow rate       TC              Rainfall Intensity
       No.        (CFS)        (min)                  (In/Hr)


      1       35.850      10.56                    2.288
      Largest stream flow has longer time of concentration
      Qp =      35.850 + sum of
      Qp =      35.850

      Total of 1 streams to confluence:
      Flow rates before confluence point:
            35.850
      Area of streams before confluence:
             24.020
      Results of confluence:
      Total flow rate =      35.850(CFS)
      Time of concentration =     10.563 min.
      Effective stream area after confluence =      24.020(Ac.)
      End of computations, total study area =          24.020 (Ac.)
```

```
                    Riverside County Rational Hydrology Program

      CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 1999 Version
6.0
            Rational Hydrology Study        Date: 11/04/10
File:THW100.out
      ------------------------ ------------------------------------------
------
       *********   Hydrology Study Control Information **********

       English (in-lb) Units used in input data file

      ------------------------------------------------------------------
------
      FOR OFFICIAL USE ONLY - CALTRANS San Bernardino - S/N 661
      ------------------------------------------------------------------
------
      Rational Method Hydrology Program based on
      Riverside County Flood Control & Water Conservation District
      1978 hydrology manual

      Storm event (year) =  100.00 Antecedent Moisture Condition = 3

      Standard intensity-duration curves data (Plate D-4.1)
      For the [ Murrieta,Tmc,Rnch CaNorco ] area used.
      10 year storm 10 minute intensity =  2.360(In/Hr)
      10 year storm 60 minute intensity =  0.880(In/Hr)
      100 year storm 10 minute intensity =  3.480(In/Hr)
      100 year storm 60 minute intensity =  1.300(In/Hr)

      Storm event year = 100.0
      Calculated rainfall intensity data:
      1 hour intensity =  1.300(In/Hr)
      Slope of intensity duration curve = 0.5500



      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station        1.000 to Point/Station
2.000
      **** INITIAL AREA EVALUATION ****
      ------------------------------------------------------------------
---
      Initial area flow distance =   606.660(Ft.)
      Top (of initial area) elevation =  1055.500(Ft.)
      Bottom (of initial area) elevation =  1048.000(Ft.)
      Difference in elevation =     7.500(Ft.)
      Slope =    0.01236  s(percent)=       1.24
      TC = k(0.300)*[(length^3)/(elevation change)]^0.2
      Initial area time of concentration =    9.373 min.
      Rainfall intensity =      3.609(In/Hr) for a   100.0 year storm
      COMMERCIAL subarea type
      Runoff Coefficient = 0.894
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
```

```
RI index for soil(AMC 3)  =  84.40
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      7.197(CFS)
Total initial stream area =       2.230(Ac.)
Pervious area fraction = 0.100

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++++
Process from Point/Station        1.000 to Point/Station
2.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
COMMERCIAL subarea type
Runoff Coefficient = 0.894
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3)  =  84.40
Pervious area fraction =  0.100; Impervious fraction =  0.900
Time of concentration =    9.37 min.
Rainfall intensity =     3.609(In/Hr) for a   100.0 year storm
Subarea runoff =     2.517(CFS) for     0.780(Ac.)
Total runoff =     9.714(CFS)      Total area =      3.010(Ac.)

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++++
Process from Point/Station        2.000 to Point/Station
3.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =  1048.000(Ft.)
Downstream point/station elevation =  1046.600(Ft.)
Pipe length  =   101.18(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     9.714(CFS)
Given pipe size =     24.00(In.)
Calculated individual pipe flow  =     9.714(CFS)
Normal flow depth in pipe =   10.03(In.)
Flow top width inside pipe =   23.67(In.)
Critical Depth =   13.37(In.)
Pipe flow velocity =      7.81(Ft/s)
Travel time through pipe =    0.22 min.
Time of concentration (TC) =     9.59 min.

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++++
Process from Point/Station        3.000 to Point/Station
4.000
**** IMPROVED CHANNEL TRAVEL TIME ****
------------------------------------------------------------------------------
Upstream point elevation =  1046.600(Ft.)
Downstream point elevation =  1046.140(Ft.)
Channel length thru subarea  =    70.000(Ft.)
Channel base width      =   10.000(Ft.)
Slope or 'Z' of left channel bank =   4.000
```

```
Slope or 'Z' of right channel bank =   4.000
Estimated mean flow rate at midpoint of channel =     10.231(CFS)
Manning's 'N'    = 0.030
Maximum depth of channel  =    2.000(Ft.)
Flow(q) thru subarea =     10.231(CFS)
Depth of flow =   0.424(Ft.), Average velocity =   2.061(Ft/s)
Channel flow top width =   13.395(Ft.)
Flow Velocity =    2.06(Ft/s)
Travel time  =    0.57 min.
Time of concentration =   10.16 min.

Sub-Channel No. 1 Critical depth =      0.305(Ft.)
   '      '        '     Critical flow top width =     12.438(Ft.)
   '      '        '     Critical flow velocity=    2.993(Ft/s)
   '      '        '     Critical flow area =      3.418(Sq.Ft)

 Adding area flow to channel
COMMERCIAL subarea type
Runoff Coefficient = 0.894
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3)  =  84.40
Pervious area fraction =  0.100; Impervious fraction =  0.900
Rainfall intensity =      3.453(In/Hr) for a   100.0 year storm
Subarea runoff =      0.988(CFS) for      0.320(Ac.)
Total runoff =     10.702(CFS)      Total area =      3.330(Ac.)


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++++
      Process from Point/Station        4.000 to Point/Station
5.000
      **** PIPEFLOW TRAVEL TIME (User specified size) ****
      ------------------------------------------------------------------------
---
      Upstream point/station elevation =  1046.140(Ft.)
      Downstream point/station elevation =  1046.000(Ft.)
      Pipe length  =    56.64(Ft.)   Manning's N = 0.013
      No. of pipes = 1  Required pipe flow  =    10.702(CFS)
      Given pipe size =     24.00(In.)
      Calculated individual pipe flow  =    10.702(CFS)
      Normal flow depth in pipe =   18.70(In.)
      Flow top width inside pipe =   19.91(In.)
      Critical Depth =   14.08(In.)
      Pipe flow velocity =      4.07(Ft/s)
      Travel time through pipe =    0.23 min.
      Time of concentration (TC) =    10.39 min.


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++++
      Process from Point/Station        5.000 to Point/Station
12.000
      **** IMPROVED CHANNEL TRAVEL TIME ****
      ------------------------------------------------------------------------
---
      Upstream point elevation =  1046.000(Ft.)
      Downstream point elevation =  1045.840(Ft.)
      Channel length thru subarea  =    71.650(Ft.)
```

```
Channel base width       =   10.000(Ft.)
Slope or 'Z' of left channel bank =   4.000
Slope or 'Z' of right channel bank =   4.000
Manning's 'N'    = 0.030
Maximum depth of channel  =    2.000(Ft.)
Flow(q) thru subarea =     10.702(CFS)
Depth of flow =   0.593(Ft.), Average velocity =   1.460(Ft/s)
Channel flow top width =   14.741(Ft.)
Flow Velocity =    1.46(Ft/s)
Travel time  =    0.82 min.
Time of concentration =   11.20 min.

Sub-Channel No. 1 Critical depth =      0.316(Ft.)
   '      '       '     Critical flow top width =     12.531(Ft.)
   '      '       '     Critical flow velocity=    3.003(Ft/s)
   '      '       '     Critical flow area =      3.565(Sq.Ft)


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      Process from Point/Station        5.000 to Point/Station
12.000
      **** CONFLUENCE OF MAIN STREAMS ****
      ------------------------------------------------------------------------
---
      The following data inside Main Stream is listed:
      In Main Stream number: 1
      Stream flow area =      3.330(Ac.)
      Runoff from this stream =     10.702(CFS)
      Time of concentration =   11.20 min.
      Rainfall intensity =     3.272(In/Hr)
      Summary of stream data:

      Stream   Flow rate      TC            Rainfall Intensity
       No.       (CFS)       (min)               (In/Hr)


      1       10.702        11.20                3.272
      Largest stream flow has longer time of concentration
      Qp =     10.702 + sum of
      Qp =     10.702

      Total of 1 main streams to confluence:
      Flow rates before confluence point:
            10.702
      Area of streams before confluence:
              3.330


      Results of confluence:
      Total flow rate =      10.702(CFS)
      Time of concentration =    11.205 min.
      Effective stream area after confluence  =       3.330(Ac.)


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station        6.000 to Point/Station
7.000
      **** INITIAL AREA EVALUATION ****
```

```
Initial area flow distance =   389.600(Ft.)
Top (of initial area) elevation =  1057.000(Ft.)
Bottom (of initial area) elevation =  1052.500(Ft.)
Difference in elevation =      4.500(Ft.)
Slope =    0.01155  s(percent)=       1.16
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    7.959 min.
Rainfall intensity =      3.949(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.895
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3)  =  84.40
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      2.402(CFS)
Total initial stream area =        0.680(Ac.)
Pervious area fraction = 0.100


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++++
Process from Point/Station        7.000 to Point/Station
8.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
------------------------------------------------------------------------
Upstream point/station elevation =  1049.000(Ft.)
Downstream point/station elevation =  1048.200(Ft.)
Pipe length =   151.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow =     2.402(CFS)
Given pipe size =     24.00(In.)
Calculated individual pipe flow =     2.402(CFS)
Normal flow depth in pipe =    6.19(In.)
Flow top width inside pipe =   21.00(In.)
Critical Depth =    6.47(In.)
Pipe flow velocity =      3.74(Ft/s)
Travel time through pipe =    0.67 min.
Time of concentration (TC) =     8.63 min.


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++++
Process from Point/Station        7.000 to Point/Station
8.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
COMMERCIAL subarea type
Runoff Coefficient = 0.894
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3)  =  84.40
Pervious area fraction =  0.100; Impervious fraction =  0.900
Time of concentration =     8.63 min.
Rainfall intensity =      3.776(In/Hr) for a   100.0 year storm
```

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      Subarea runoff =       7.060(CFS) for       2.090(Ac.)
      Total runoff =       9.462(CFS)       Total area =       2.770(Ac.)

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++++
      Process from Point/Station        8.000 to Point/Station
9.000
      **** IMPROVED CHANNEL TRAVEL TIME ****
      ---------------------------------------------------------------------
      Upstream point elevation =  1048.200(Ft.)
      Downstream point elevation =  1047.580(Ft.)
      Channel length thru subarea  =  150.000(Ft.)
      Channel base width       =    0.000(Ft.)
      Slope or 'Z' of left channel bank =   4.000
      Slope or 'Z' of right channel bank =   4.000
      Estimated mean flow rate at midpoint of channel =     11.512(CFS)
      Manning's 'N'    = 0.030
      Maximum depth of channel  =    7.000(Ft.)
      Flow(q) thru subarea =     11.512(CFS)
      Depth of flow =   1.154(Ft.), Average velocity =   2.163(Ft/s)
      Channel flow top width =    9.229(Ft.)
      Flow Velocity =    2.16(Ft/s)
      Travel time  =    1.16 min.
      Time of concentration =    9.79 min.

      Sub-Channel No. 1 Critical depth =      0.875(Ft.)
        '      '       '     Critical flow top width =      7.000(Ft.)
        '      '       '     Critical flow velocity=    3.759(Ft/s)
        '      '       '     Critical flow area =      3.063(Sq.Ft)

       Adding area flow to channel
      COMMERCIAL subarea type
      Runoff Coefficient = 0.894
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 3)  =  84.40
      Pervious area fraction =  0.100; Impervious fraction =  0.900
      Rainfall intensity =      3.524(In/Hr) for a   100.0 year storm
      Subarea runoff =      3.781(CFS) for      1.200(Ac.)
      Total runoff =     13.243(CFS)      Total area =       3.970(Ac.)

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++++
      Process from Point/Station        8.000 to Point/Station
9.000
      **** CONFLUENCE OF MINOR STREAMS ****
      ---------------------------------------------------------------------
      Along Main Stream number: 1 in normal stream number 1
      Stream flow area =      3.970(Ac.)
      Runoff from this stream =     13.243(CFS)
      Time of concentration =    9.79 min.
      Rainfall intensity =     3.524(In/Hr)

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++++
      Process from Point/Station       14.000 to Point/Station
15.000
      **** INITIAL AREA EVALUATION ****
      ----------------------------------------------------------------------
      Initial area flow distance =    101.000(Ft.)
      Top (of initial area) elevation =  1055.500(Ft.)
      Bottom (of initial area) elevation =  1051.150(Ft.)
      Difference in elevation =      4.350(Ft.)
      Slope =    0.04307  s(percent)=       4.31
      TC = k(0.300)*[(length^3)/(elevation change)]^0.2
      Warning: TC computed to be less than 5 min.; program is assuming
the
      time of concentration is 5 minutes.
      Initial area time of concentration =    5.000 min.
      Rainfall intensity =      5.099(In/Hr) for a   100.0 year storm
      COMMERCIAL subarea type
      Runoff Coefficient = 0.896
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 3)  =  84.40
      Pervious area fraction =  0.100; Impervious fraction =  0.900
      Initial subarea runoff =      1.142(CFS)
      Total initial stream area =        0.250(Ac.)
      Pervious area fraction = 0.100

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++++
      Process from Point/Station       15.000 to Point/Station
16.000
      **** PIPEFLOW TRAVEL TIME (User specified size) ****
      ----------------------------------------------------------------------
      Upstream point/station elevation =  1051.150(Ft.)
      Downstream point/station elevation =  1049.300(Ft.)
      Pipe length  =   185.00(Ft.)   Manning's N = 0.013
      No. of pipes = 1  Required pipe flow  =     1.142(CFS)
      Given pipe size =     18.00(In.)
      Calculated individual pipe flow  =     1.142(CFS)
      Normal flow depth in pipe =    4.01(In.)
      Flow top width inside pipe =   14.98(In.)
      Critical Depth =    4.78(In.)
      Pipe flow velocity =      3.89(Ft/s)
      Travel time through pipe =    0.79 min.
      Time of concentration (TC) =     5.79 min.

      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station       15.000 to Point/Station
16.000
      **** SUBAREA FLOW ADDITION ****
      ----------------------------------------------------------------------
      COMMERCIAL subarea type
      Runoff Coefficient = 0.896
      Decimal fraction soil group A = 0.000
```

```
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3)  =  84.40
Pervious area fraction =  0.100; Impervious fraction =  0.900
Time of concentration =  5.79 min.
Rainfall intensity =  4.703(In/Hr) for a  100.0 year storm
Subarea runoff =  0.842(CFS) for  0.200(Ac.)
Total runoff =  1.984(CFS)  Total area =  0.450(Ac.)

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++++
Process from Point/Station  16.000 to Point/Station
9.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
------------------------------------------------------------------------------

Upstream point/station elevation =  1049.300(Ft.)
Downstream point/station elevation =  1048.000(Ft.)
Pipe length =  130.00(Ft.)  Manning's N = 0.013
No. of pipes = 1  Required pipe flow =  1.984(CFS)
Given pipe size =  18.00(In.)
Calculated individual pipe flow =  1.984(CFS)
Normal flow depth in pipe =  5.30(In.)
Flow top width inside pipe =  16.41(In.)
Critical Depth =  6.37(In.)
Pipe flow velocity =  4.57(Ft/s)
Travel time through pipe =  0.47 min.
Time of concentration (TC) =  6.27 min.


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++++
Process from Point/Station  16.000 to Point/Station
9.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------

Along Main Stream number: 1 in normal stream number 2
Stream flow area =  0.450(Ac.)
Runoff from this stream =  1.984(CFS)
Time of concentration =  6.27 min.
Rainfall intensity =  4.504(In/Hr)
Summary of stream data:

Stream  Flow rate  TC  Rainfall Intensity
 No.  (CFS)  (min)  (In/Hr)

1  13.243  9.79  3.524
2  1.984  6.27  4.504
Largest stream flow has longer time of concentration
Qp =  13.243 + sum of
        Qb  Ia/Ib
        1.984 *  0.782 =  1.553
Qp =  14.796

Total of 2 streams to confluence:
Flow rates before confluence point:
  13.243  1.984
```

```
      Area of streams before confluence:
              3.970        0.450
      Results of confluence:
      Total flow rate =      14.796(CFS)
      Time of concentration =      9.788 min.
      Effective stream area after confluence =       4.420(Ac.)


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station        9.000 to Point/Station
10.000
      **** PIPEFLOW TRAVEL TIME (User specified size) ****
      ------------------------------------------------------------------------
---
      Upstream point/station elevation =  1047.580(Ft.)
      Downstream point/station elevation =  1046.850(Ft.)
      Pipe length  =    63.13(Ft.)   Manning's N = 0.013
      No. of pipes = 1  Required pipe flow  =    14.796(CFS)
      Given pipe size =     24.00(In.)
      Calculated individual pipe flow  =    14.796(CFS)
      Normal flow depth in pipe =   13.51(In.)
      Flow top width inside pipe =   23.81(In.)
      Critical Depth =   16.63(In.)
      Pipe flow velocity =      8.12(Ft/s)
      Travel time through pipe =    0.13 min.
      Time of concentration (TC) =     9.92 min.


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++++
      Process from Point/Station       10.000 to Point/Station
11.000
      **** IMPROVED CHANNEL TRAVEL TIME ****
      ------------------------------------------------------------------------
---
      Upstream point elevation =  1046.850(Ft.)
      Downstream point elevation =  1046.420(Ft.)
      Channel length thru subarea  =    93.000(Ft.)
      Channel base width       =    0.000(Ft.)
      Slope or 'Z' of left channel bank =    4.000
      Slope or 'Z' of right channel bank =    4.000
      Estimated mean flow rate at midpoint of channel =     15.432(CFS)
      Manning's 'N'    = 0.030
      Maximum depth of channel  =    4.000(Ft.)
      Flow(q) thru subarea =     15.432(CFS)
      Depth of flow =   1.261(Ft.), Average velocity =   2.427(Ft/s)
      Channel flow top width =   10.087(Ft.)
      Flow Velocity =    2.43(Ft/s)
      Travel time  =    0.64 min.
      Time of concentration =   10.56 min.

      Sub-Channel No. 1 Critical depth =      0.984(Ft.)
        '     '       '     Critical flow top width =      7.875(Ft.)
        '     '       '     Critical flow velocity=    3.981(Ft/s)
        '     '       '     Critical flow area =      3.876(Sq.Ft)

       Adding area flow to channel
      COMMERCIAL subarea type
      Runoff Coefficient = 0.894
      Decimal fraction soil group A = 0.000
```

```
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 3)  =  84.40
      Pervious area fraction =  0.100; Impervious fraction =  0.900
      Rainfall intensity =      3.381(In/Hr) for a   100.0 year storm
      Subarea runoff =      1.148(CFS) for      0.380(Ac.)
      Total runoff =     15.944(CFS)      Total area =       4.800(Ac.)

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++++
      Process from Point/Station       11.000 to Point/Station
12.000
      **** PIPEFLOW TRAVEL TIME (User specified size) ****
      ------------------------------------------------------------------------
----
      Upstream point/station elevation =  1046.420(Ft.)
      Downstream point/station elevation =  1046.200(Ft.)
      Pipe length  =    96.00(Ft.)   Manning's N = 0.013
      No. of pipes = 1  Required pipe flow  =    15.944(CFS)
      Given pipe size =    24.00(In.)
      NOTE: Normal flow is pressure flow in user selected pipe size.
      The approximate hydraulic grade line above the pipe invert is
           1.057(Ft.)  at the headworks or inlet of the pipe(s)
       Pipe friction loss =      0.477(Ft.)
       Minor friction loss =     0.800(Ft.)    K-factor =   2.00
      Pipe flow velocity =      5.08(Ft/s)
      Travel time through pipe =    0.32 min.
      Time of concentration (TC) =    10.87 min.


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station       11.000 to Point/Station
12.000
      **** SUBAREA FLOW ADDITION ****
      ------------------------------------------------------------------------
----
      COMMERCIAL subarea type
      Runoff Coefficient = 0.894
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 3)  =  84.40
      Pervious area fraction =  0.100; Impervious fraction =  0.900
      Time of concentration =    10.87 min.
      Rainfall intensity =      3.326(In/Hr) for a   100.0 year storm
      Subarea runoff =      1.100(CFS) for      0.370(Ac.)
      Total runoff =     17.044(CFS)      Total area =       5.170(Ac.)

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     Process from Point/Station       12.000 to Point/Station
13.000
      **** IMPROVED CHANNEL TRAVEL TIME ****
      ------------------------------------------------------------------------
----
      Upstream point elevation =  1046.200(Ft.)
```

```
Downstream point elevation =  1045.840(Ft.)
Channel length thru subarea  =    52.000(Ft.)
Channel base width           =    10.000(Ft.)
Slope or 'Z' of left channel bank =   4.000
Slope or 'Z' of right channel bank =   4.000
Estimated mean flow rate at midpoint of channel =     17.506(CFS)
Manning's 'N'    = 0.030
Maximum depth of channel  =     2.000(Ft.)
Flow(q) thru subarea =      17.506(CFS)
Depth of flow =   0.568(Ft.), Average velocity =   2.509(Ft/s)
Channel flow top width =   14.548(Ft.)
Flow Velocity =    2.51(Ft/s)
Travel time  =    0.35 min.
Time of concentration =   11.22 min.

Sub-Channel No. 1 Critical depth =      0.430(Ft.)
   '      '         '     Critical flow top width =     13.438(Ft.)
   '      '         '     Critical flow velocity=    3.477(Ft/s)
   '      '         '     Critical flow area =      5.035(Sq.Ft)

 Adding area flow to channel
COMMERCIAL subarea type
Runoff Coefficient = 0.894
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3)  =  84.40
Pervious area fraction =  0.100; Impervious fraction =  0.900
Rainfall intensity =      3.270(In/Hr) for a   100.0 year storm
Subarea runoff =      0.818(CFS) for      0.280(Ac.)
Total runoff =     17.863(CFS)      Total area =       5.450(Ac.)


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Process from Point/Station       12.000 to Point/Station
13.000
**** CONFLUENCE OF MAIN STREAMS ****
--------------------------------------------------------------------------------

The following data inside Main Stream is listed:
In Main Stream number: 2
Stream flow area =      5.450(Ac.)
Runoff from this stream =     17.863(CFS)
Time of concentration =   11.22 min.
Rainfall intensity =     3.270(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)


1       10.702     11.20               3.272
2       17.863     11.22               3.270
Largest stream flow has longer time of concentration
Qp =     17.863 + sum of
        Qb         Ia/Ib
        10.702 *    0.999 =     10.696
Qp =     28.559
```

```
Total of 2 main streams to confluence:
Flow rates before confluence point:
      10.702       17.863
Area of streams before confluence:
        3.330        5.450


Results of confluence:
Total flow rate =      28.559(CFS)
Time of concentration =    11.217 min.
Effective stream area after confluence  =       8.780(Ac.)
End of computations, total study area =           8.780 (Ac.)
```

```
                    Riverside County Rational Hydrology Program

      CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 1999 Version
6.0

            Rational Hydrology Study         Date: 11/04/10
File:THW10.out
-------------------------------------------------------------------------
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       *********   Hydrology Study Control Information **********

       English (in-lb) Units used in input data file

-------------------------------------------------------------------------
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       FOR OFFICIAL USE ONLY - CALTRANS San Bernardino - S/N 661
-------------------------------------------------------------------------
------
       Rational Method Hydrology Program based on
       Riverside County Flood Control & Water Conservation District
       1978 hydrology manual

       Storm event (year) =    10.00 Antecedent Moisture Condition = 3

       Standard intensity-duration curves data (Plate D-4.1)
       For the [ Murrieta,Tmc,Rnch CaNorco ] area used.
       10 year storm 10 minute intensity =  2.360(In/Hr)
       10 year storm 60 minute intensity =  0.880(In/Hr)
       100 year storm 10 minute intensity =  3.480(In/Hr)
       100 year storm 60 minute intensity =  1.300(In/Hr)

       Storm event year =  10.0
       Calculated rainfall intensity data:
       1 hour intensity =  0.880(In/Hr)
       Slope of intensity duration curve = 0.5500



       ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
       Process from Point/Station        1.000 to Point/Station
2.000
       **** INITIAL AREA EVALUATION ****
       ---------------------------------------------------------------------
---
       Initial area flow distance =   606.660(Ft.)
       Top (of initial area) elevation =  1055.500(Ft.)
       Bottom (of initial area) elevation =  1048.000(Ft.)
       Difference in elevation =     7.500(Ft.)
       Slope =    0.01236  s(percent)=       1.24
       TC = k(0.300)*[(length^3)/(elevation change)]^0.2
       Initial area time of concentration =    9.373 min.
       Rainfall intensity =      2.443(In/Hr) for a    10.0 year storm
       COMMERCIAL subarea type
       Runoff Coefficient = 0.892
       Decimal fraction soil group A = 0.000
       Decimal fraction soil group B = 0.000
       Decimal fraction soil group C = 1.000
       Decimal fraction soil group D = 0.000
```

```
RI index for soil(AMC 3)  =  84.40
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      4.858(CFS)
Total initial stream area =       2.230(Ac.)
Pervious area fraction = 0.100

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station        1.000 to Point/Station
2.000
      **** SUBAREA FLOW ADDITION ****
-----------------------------------------------------------------------------

      COMMERCIAL subarea type
      Runoff Coefficient = 0.892
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 3)  =  84.40
      Pervious area fraction =  0.100; Impervious fraction =  0.900
      Time of concentration =     9.37 min.
      Rainfall intensity =      2.443(In/Hr) for a    10.0 year storm
      Subarea runoff =      1.699(CFS) for      0.780(Ac.)
      Total runoff =      6.558(CFS)      Total area =       3.010(Ac.)

      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station        2.000 to Point/Station
3.000
      **** PIPEFLOW TRAVEL TIME (User specified size) ****
-----------------------------------------------------------------------------

      Upstream point/station elevation =  1048.000(Ft.)
      Downstream point/station elevation =  1046.600(Ft.)
      Pipe length  =   101.18(Ft.)   Manning's N = 0.013
      No. of pipes = 1  Required pipe flow  =     6.558(CFS)
      Given pipe size =     24.00(In.)
      Calculated individual pipe flow  =     6.558(CFS)
      Normal flow depth in pipe =    8.12(In.)
      Flow top width inside pipe =   22.71(In.)
      Critical Depth =   10.89(In.)
      Pipe flow velocity =      7.01(Ft/s)
      Travel time through pipe =    0.24 min.
      Time of concentration (TC) =     9.61 min.

      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station        3.000 to Point/Station
4.000
      **** IMPROVED CHANNEL TRAVEL TIME ****
-----------------------------------------------------------------------------

      Upstream point elevation =  1046.600(Ft.)
      Downstream point elevation =  1046.140(Ft.)
      Channel length thru subarea  =    70.000(Ft.)
      Channel base width       =   10.000(Ft.)
      Slope or 'Z' of left channel bank =   4.000
```

```
Slope or 'Z' of right channel bank =   4.000
Estimated mean flow rate at midpoint of channel =      6.906(CFS)
Manning's 'N'    = 0.030
Maximum depth of channel  =    2.000(Ft.)
Flow(q) thru subarea =      6.906(CFS)
Depth of flow =   0.338(Ft.), Average velocity =   1.800(Ft/s)
Channel flow top width =   12.704(Ft.)
Flow Velocity =    1.80(Ft/s)
Travel time  =    0.65 min.
Time of concentration =   10.26 min.

Sub-Channel No. 1 Critical depth =      0.238(Ft.)
   '      '        '     Critical flow top width =     11.906(Ft.)
   '      '        '     Critical flow velocity=    2.646(Ft/s)
   '      '        '     Critical flow area =      2.610(Sq.Ft)

 Adding area flow to channel
COMMERCIAL subarea type
Runoff Coefficient = 0.891
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3)  =  84.40
Pervious area fraction =  0.100; Impervious fraction =  0.900
Rainfall intensity =      2.324(In/Hr) for a    10.0 year storm
Subarea runoff =      0.663(CFS) for      0.320(Ac.)
Total runoff =      7.221(CFS)      Total area =      3.330(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station        4.000 to Point/Station
5.000
      **** PIPEFLOW TRAVEL TIME (User specified size) ****
      ------------------------------------------------------------------------
---
      Upstream point/station elevation =  1046.140(Ft.)
      Downstream point/station elevation =  1046.000(Ft.)
      Pipe length  =    56.64(Ft.)   Manning's N = 0.013
      No. of pipes = 1  Required pipe flow  =     7.221(CFS)
      Given pipe size =     24.00(In.)
      Calculated individual pipe flow  =     7.221(CFS)
      Normal flow depth in pipe =   13.98(In.)
      Flow top width inside pipe =   23.67(In.)
      Critical Depth =   11.46(In.)
      Pipe flow velocity =      3.80(Ft/s)
      Travel time through pipe =    0.25 min.
      Time of concentration (TC) =    10.51 min.


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      Process from Point/Station        5.000 to Point/Station
12.000
      **** IMPROVED CHANNEL TRAVEL TIME ****
      ------------------------------------------------------------------------
---
      Upstream point elevation =  1046.000(Ft.)
      Downstream point elevation =  1045.840(Ft.)
      Channel length thru subarea  =    71.650(Ft.)
```

```
Channel base width        =    10.000(Ft.)
Slope or 'Z' of left channel bank =    4.000
Slope or 'Z' of right channel bank =    4.000
Manning's 'N'     = 0.030
Maximum depth of channel  =     2.000(Ft.)
Flow(q) thru subarea =       7.221(CFS)
Depth of flow =    0.474(Ft.), Average velocity =    1.282(Ft/s)
Channel flow top width =    13.789(Ft.)
Flow Velocity =     1.28(Ft/s)
Travel time  =     0.93 min.
Time of concentration =    11.44 min.

Sub-Channel No. 1 Critical depth =       0.246(Ft.)
  '      '       '     Critical flow top width =      11.969(Ft.)
  '      '       '     Critical flow velocity=     2.671(Ft/s)
  '      '       '     Critical flow area =       2.703(Sq.Ft)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station        5.000 to Point/Station
12.000
      **** CONFLUENCE OF MAIN STREAMS ****
      ------------------------------------------------------------------------

      The following data inside Main Stream is listed:
      In Main Stream number: 1
      Stream flow area =       3.330(Ac.)
      Runoff from this stream =       7.221(CFS)
      Time of concentration =    11.44 min.
      Rainfall intensity =      2.189(In/Hr)
      Summary of stream data:

      Stream    Flow rate       TC              Rainfall Intensity
       No.        (CFS)        (min)                   (In/Hr)


      1         7.221        11.44                    2.189
      Largest stream flow has longer time of concentration
      Qp =       7.221 + sum of
      Qp =       7.221

      Total of 1 main streams to confluence:
      Flow rates before confluence point:
            7.221
      Area of streams before confluence:
             3.330


      Results of confluence:
      Total flow rate =       7.221(CFS)
      Time of concentration =     11.442 min.
      Effective stream area after confluence  =       3.330(Ac.)

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++++
      Process from Point/Station        6.000 to Point/Station
7.000
      **** INITIAL AREA EVALUATION ****
```

```
Initial area flow distance =    389.600(Ft.)
Top (of initial area) elevation =  1057.000(Ft.)
Bottom (of initial area) elevation =  1052.500(Ft.)
Difference in elevation =      4.500(Ft.)
Slope =    0.01155  s(percent)=       1.16
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    7.959 min.
Rainfall intensity =      2.673(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.892
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3)  =  84.40
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      1.622(CFS)
Total initial stream area =        0.680(Ac.)
Pervious area fraction = 0.100


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++++
Process from Point/Station        7.000 to Point/Station
8.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
------------------------------------------------------------------------------

Upstream point/station elevation =  1049.000(Ft.)
Downstream point/station elevation =  1048.200(Ft.)
Pipe length  =   151.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     1.622(CFS)
Given pipe size =     24.00(In.)
Calculated individual pipe flow  =     1.622(CFS)
Normal flow depth in pipe =    5.09(In.)
Flow top width inside pipe =   19.62(In.)
Critical Depth =    5.29(In.)
Pipe flow velocity =      3.34(Ft/s)
Travel time through pipe =    0.75 min.
Time of concentration (TC) =     8.71 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
Process from Point/Station        7.000 to Point/Station
8.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------

COMMERCIAL subarea type
Runoff Coefficient = 0.892
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3)  =  84.40
Pervious area fraction =  0.100; Impervious fraction =  0.900
Time of concentration =     8.71 min.
Rainfall intensity =      2.543(In/Hr) for a    10.0 year storm
```

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      Subarea runoff =      4.741(CFS) for      2.090(Ac.)
      Total runoff =      6.363(CFS)      Total area =      2.770(Ac.)

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++++
      Process from Point/Station        8.000 to Point/Station
9.000
      **** IMPROVED CHANNEL TRAVEL TIME ****
      ----------------------------------------------------------------------

      Upstream point elevation =  1048.200(Ft.)
      Downstream point elevation =  1047.580(Ft.)
      Channel length thru subarea  =   150.000(Ft.)
      Channel base width           =     0.000(Ft.)
      Slope or 'Z' of left channel bank =    4.000
      Slope or 'Z' of right channel bank =    4.000
      Estimated mean flow rate at midpoint of channel =      7.742(CFS)
      Manning's 'N'    = 0.030
      Maximum depth of channel  =     7.000(Ft.)
      Flow(q) thru subarea =      7.742(CFS)
      Depth of flow =   0.994(Ft.), Average velocity =   1.958(Ft/s)
      Channel flow top width =     7.953(Ft.)
      Flow Velocity =    1.96(Ft/s)
      Travel time  =    1.28 min.
      Time of concentration =     9.99 min.

      Sub-Channel No. 1 Critical depth =      0.750(Ft.)
        '     '       '     Critical flow top width =      6.000(Ft.)
        '     '       '     Critical flow velocity=    3.441(Ft/s)
        '     '       '     Critical flow area =      2.250(Sq.Ft)

       Adding area flow to channel
      COMMERCIAL subarea type
      Runoff Coefficient = 0.891
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 3)  =  84.40
      Pervious area fraction =  0.100; Impervious fraction =  0.900
      Rainfall intensity =      2.359(In/Hr) for a    10.0 year storm
      Subarea runoff =      2.524(CFS) for      1.200(Ac.)
      Total runoff =      8.887(CFS)      Total area =      3.970(Ac.)


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++++
      Process from Point/Station        8.000 to Point/Station
9.000
      **** CONFLUENCE OF MINOR STREAMS ****
      ----------------------------------------------------------------------

      Along Main Stream number: 1 in normal stream number 1
      Stream flow area =      3.970(Ac.)
      Runoff from this stream =      8.887(CFS)
      Time of concentration =    9.99 min.
      Rainfall intensity =     2.359(In/Hr)


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++++
      Process from Point/Station       14.000 to Point/Station
15.000
      **** INITIAL AREA EVALUATION ****
      ----------------------------------------------------------------
      Initial area flow distance =   101.000(Ft.)
      Top (of initial area) elevation =  1055.500(Ft.)
      Bottom (of initial area) elevation =  1051.150(Ft.)
      Difference in elevation =     4.350(Ft.)
      Slope =    0.04307  s(percent)=       4.31
      TC = k(0.300)*[(length^3)/(elevation change)]^0.2
      Warning: TC computed to be less than 5 min.; program is assuming
the
      time of concentration is 5 minutes.
      Initial area time of concentration =    5.000 min.
      Rainfall intensity =      3.452(In/Hr) for a    10.0 year storm
      COMMERCIAL subarea type
      Runoff Coefficient = 0.894
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 3)  =  84.40
      Pervious area fraction =  0.100; Impervious fraction =  0.900
      Initial subarea runoff =      0.771(CFS)
      Total initial stream area =       0.250(Ac.)
      Pervious area fraction = 0.100

      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station       15.000 to Point/Station
16.000
      **** PIPEFLOW TRAVEL TIME (User specified size) ****
      ----------------------------------------------------------------
      Upstream point/station elevation =  1051.150(Ft.)
      Downstream point/station elevation =  1049.300(Ft.)
      Pipe length =   185.00(Ft.)   Manning's N = 0.013
      No. of pipes = 1  Required pipe flow =     0.771(CFS)
      Given pipe size =     18.00(In.)
      Calculated individual pipe flow =     0.771(CFS)
      Normal flow depth in pipe =    3.30(In.)
      Flow top width inside pipe =   13.93(In.)
      Critical Depth =    3.91(In.)
      Pipe flow velocity =      3.47(Ft/s)
      Travel time through pipe =    0.89 min.
      Time of concentration (TC) =     5.89 min.

      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station       15.000 to Point/Station
16.000
      **** SUBAREA FLOW ADDITION ****
      ----------------------------------------------------------------
      COMMERCIAL subarea type
      Runoff Coefficient = 0.893
      Decimal fraction soil group A = 0.000
```

```
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3)  =  84.40
Pervious area fraction =  0.100; Impervious fraction =  0.900
Time of concentration =     5.89 min.
Rainfall intensity =      3.155(In/Hr) for a    10.0 year storm
Subarea runoff =      0.564(CFS) for      0.200(Ac.)
Total runoff =      1.335(CFS)      Total area =       0.450(Ac.)

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
Process from Point/Station       16.000 to Point/Station
9.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =  1049.300(Ft.)
Downstream point/station elevation =  1048.000(Ft.)
Pipe length  =   130.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     1.335(CFS)
Given pipe size =     18.00(In.)
Calculated individual pipe flow  =     1.335(CFS)
Normal flow depth in pipe =    4.33(In.)
Flow top width inside pipe =   15.39(In.)
Critical Depth =    5.19(In.)
Pipe flow velocity =      4.08(Ft/s)
Travel time through pipe =    0.53 min.
Time of concentration (TC) =     6.42 min.


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++++
Process from Point/Station       16.000 to Point/Station
9.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      0.450(Ac.)
Runoff from this stream =      1.335(CFS)
Time of concentration =    6.42 min.
Rainfall intensity =     3.008(In/Hr)
Summary of stream data:

Stream    Flow rate       TC            Rainfall Intensity
 No.        (CFS)        (min)                 (In/Hr)


1         8.887       9.99                  2.359
2         1.335       6.42                  3.008
Largest stream flow has longer time of concentration
Qp =      8.887 + sum of
         Qb          Ia/Ib
          1.335 *     0.784 =      1.047
Qp =      9.934

Total of 2 streams to confluence:
Flow rates before confluence point:
       8.887       1.335
```

```
      Area of streams before confluence:
              3.970        0.450
      Results of confluence:
      Total flow rate =       9.934(CFS)
      Time of concentration =      9.990 min.
      Effective stream area after confluence =       4.420(Ac.)


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station        9.000 to Point/Station
10.000
      **** PIPEFLOW TRAVEL TIME (User specified size) ****
      ------------------------------------------------------------------------
---
      Upstream point/station elevation =  1047.580(Ft.)
      Downstream point/station elevation =  1046.850(Ft.)
      Pipe length  =    63.13(Ft.)   Manning's N = 0.013
      No. of pipes = 1  Required pipe flow  =     9.934(CFS)
      Given pipe size =     24.00(In.)
      Calculated individual pipe flow  =     9.934(CFS)
      Normal flow depth in pipe =   10.68(In.)
      Flow top width inside pipe =   23.85(In.)
      Critical Depth =   13.52(In.)
      Pipe flow velocity =      7.35(Ft/s)
      Travel time through pipe =    0.14 min.
      Time of concentration (TC) =    10.13 min.


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station       10.000 to Point/Station
11.000
      **** IMPROVED CHANNEL TRAVEL TIME ****
      ------------------------------------------------------------------------
---
      Upstream point elevation =  1046.850(Ft.)
      Downstream point elevation =  1046.420(Ft.)
      Channel length thru subarea  =    93.000(Ft.)
      Channel base width       =    0.000(Ft.)
      Slope or 'Z' of left channel bank =   4.000
      Slope or 'Z' of right channel bank =   4.000
      Estimated mean flow rate at midpoint of channel =     10.361(CFS)
      Manning's 'N'    = 0.030
      Maximum depth of channel  =    4.000(Ft.)
      Flow(q) thru subarea =     10.361(CFS)
      Depth of flow =   1.086(Ft.), Average velocity =   2.197(Ft/s)
      Channel flow top width =    8.687(Ft.)
      Flow Velocity =    2.20(Ft/s)
      Travel time  =    0.71 min.
      Time of concentration =   10.84 min.

      Sub-Channel No. 1 Critical depth =      0.840(Ft.)
        '     '       '     Critical flow top width =      6.719(Ft.)
        '     '       '     Critical flow velocity=    3.672(Ft/s)
        '     '       '     Critical flow area =      2.821(Sq.Ft)

       Adding area flow to channel
      COMMERCIAL subarea type
      Runoff Coefficient = 0.891
      Decimal fraction soil group A = 0.000
```

```
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 3)  =  84.40
      Pervious area fraction =  0.100; Impervious fraction =  0.900
      Rainfall intensity =      2.255(In/Hr) for a    10.0 year storm
      Subarea runoff =      0.764(CFS) for      0.380(Ac.)
      Total runoff =     10.698(CFS)      Total area =       4.800(Ac.)


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station       11.000 to Point/Station
12.000
      **** PIPEFLOW TRAVEL TIME (User specified size) ****
      ------------------------------------------------------------------------
----
      Upstream point/station elevation =  1046.420(Ft.)
      Downstream point/station elevation =  1046.200(Ft.)
      Pipe length  =    96.00(Ft.)   Manning's N = 0.013
      No. of pipes = 1  Required pipe flow  =    10.698(CFS)
      Given pipe size =     24.00(In.)
      Calculated individual pipe flow  =    10.698(CFS)
      Normal flow depth in pipe =   19.41(In.)
      Flow top width inside pipe =   18.88(In.)
      Critical Depth =   14.06(In.)
      Pipe flow velocity =      3.93(Ft/s)
      Travel time through pipe =    0.41 min.
      Time of concentration (TC) =    11.25 min.


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station       11.000 to Point/Station
12.000
      **** SUBAREA FLOW ADDITION ****
      ------------------------------------------------------------------------
----
      COMMERCIAL subarea type
      Runoff Coefficient = 0.891
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 3)  =  84.40
      Pervious area fraction =  0.100; Impervious fraction =  0.900
      Time of concentration =    11.25 min.
      Rainfall intensity =      2.210(In/Hr) for a    10.0 year storm
      Subarea runoff =      0.729(CFS) for      0.370(Ac.)
      Total runoff =     11.426(CFS)      Total area =       5.170(Ac.)


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station       12.000 to Point/Station
13.000
      **** IMPROVED CHANNEL TRAVEL TIME ****
      ------------------------------------------------------------------------
----
      Upstream point elevation =  1046.200(Ft.)
      Downstream point elevation =  1045.840(Ft.)
```

```
Channel length thru subarea  =     52.000(Ft.)
Channel base width           =     10.000(Ft.)
Slope or 'Z' of left channel bank =   4.000
Slope or 'Z' of right channel bank =   4.000
Estimated mean flow rate at midpoint of channel =     11.736(CFS)
Manning's 'N'    = 0.030
Maximum depth of channel  =     2.000(Ft.)
Flow(q) thru subarea =      11.736(CFS)
Depth of flow =   0.452(Ft.), Average velocity =   2.197(Ft/s)
Channel flow top width =   13.619(Ft.)
Flow Velocity =    2.20(Ft/s)
Travel time  =    0.39 min.
Time of concentration =   11.64 min.

Sub-Channel No. 1 Critical depth =       0.336(Ft.)
   '      '        '     Critical flow top width =      12.688(Ft.)
   '      '        '     Critical flow velocity=     3.080(Ft/s)
   '      '        '     Critical flow area =       3.811(Sq.Ft)

 Adding area flow to channel
COMMERCIAL subarea type
Runoff Coefficient = 0.891
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3)  =  84.40
Pervious area fraction =  0.100; Impervious fraction =  0.900
Rainfall intensity =      2.169(In/Hr) for a    10.0 year storm
Subarea runoff =      0.541(CFS) for      0.280(Ac.)
Total runoff =     11.967(CFS)      Total area =       5.450(Ac.)


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++++
Process from Point/Station       12.000 to Point/Station
13.000
**** CONFLUENCE OF MAIN STREAMS ****
--------------------------------------------------------------------------------
The following data inside Main Stream is listed:
In Main Stream number: 2
Stream flow area =      5.450(Ac.)
Runoff from this stream =     11.967(CFS)
Time of concentration =   11.64 min.
Rainfall intensity =     2.169(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)


1         7.221     11.44                2.189
2        11.967     11.64                2.169
Largest stream flow has longer time of concentration
Qp =     11.967 + sum of
        Qb          Ia/Ib
         7.221 *    0.991 =      7.153
Qp =     19.120

Total of 2 main streams to confluence:
```

Flow rates before confluence point:
7.221 11.967
Area of streams before confluence:
3.330 5.450

Results of confluence:
Total flow rate = 19.120(CFS)
Time of concentration = 11.640 min.
Effective stream area after confluence = 8.780(Ac.)
End of computations, total study area = 8.780 (Ac.)

```
                    Riverside County Rational Hydrology Program

     CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 1999 Version
6.0

            Rational Hydrology Study         Date: 11/04/10
File:THW2.out
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      *********  Hydrology Study Control Information **********

      English (in-lb) Units used in input data file

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      FOR OFFICIAL USE ONLY - CALTRANS San Bernardino - S/N 661
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      Rational Method Hydrology Program based on
      Riverside County Flood Control & Water Conservation District
      1978 hydrology manual

      Storm event (year) =    2.00 Antecedent Moisture Condition = 3

      Standard intensity-duration curves data (Plate D-4.1)
      For the [ Murrieta,Tmc,Rnch CaNorco ] area used.
      10 year storm 10 minute intensity =  2.360(In/Hr)
      10 year storm 60 minute intensity =  0.880(In/Hr)
      100 year storm 10 minute intensity =  3.480(In/Hr)
      100 year storm 60 minute intensity =  1.300(In/Hr)

      Storm event year =  2.0
      Calculated rainfall intensity data:
      1 hour intensity =  0.586(In/Hr)
      Slope of intensity duration curve = 0.5500



      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station        1.000 to Point/Station
2.000
      **** INITIAL AREA EVALUATION ****
      ----------------------------------------------------------------------
---
      Initial area flow distance =   606.660(Ft.)
      Top (of initial area) elevation =  1055.500(Ft.)
      Bottom (of initial area) elevation =  1048.000(Ft.)
      Difference in elevation =     7.500(Ft.)
      Slope =    0.01236  s(percent)=      1.24
      TC = k(0.300)*[(length^3)/(elevation change)]^0.2
      Initial area time of concentration =    9.373 min.
      Rainfall intensity =     1.628(In/Hr) for a     2.0 year storm
      COMMERCIAL subarea type
      Runoff Coefficient = 0.888
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
```

```
RI index for soil(AMC 3)  =  84.40
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      3.225(CFS)
Total initial stream area =        2.230(Ac.)
Pervious area fraction = 0.100

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++++
Process from Point/Station        1.000 to Point/Station
2.000
**** SUBAREA FLOW ADDITION ****
-------------------------------------------------------------------------------

COMMERCIAL subarea type
Runoff Coefficient = 0.888
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3)  =  84.40
Pervious area fraction =  0.100; Impervious fraction =  0.900
Time of concentration =    9.37 min.
Rainfall intensity =      1.628(In/Hr) for a     2.0 year storm
Subarea runoff =      1.128(CFS) for      0.780(Ac.)
Total runoff =      4.352(CFS)      Total area =       3.010(Ac.)

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++++
Process from Point/Station        2.000 to Point/Station
3.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
-------------------------------------------------------------------------------

Upstream point/station elevation =  1048.000(Ft.)
Downstream point/station elevation =  1046.600(Ft.)
Pipe length  =   101.18(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     4.352(CFS)
Given pipe size =     24.00(In.)
Calculated individual pipe flow  =     4.352(CFS)
Normal flow depth in pipe =    6.56(In.)
Flow top width inside pipe =   21.39(In.)
Critical Depth =    8.79(In.)
Pipe flow velocity =      6.24(Ft/s)
Travel time through pipe =    0.27 min.
Time of concentration (TC) =     9.64 min.

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++++
Process from Point/Station        3.000 to Point/Station
4.000
**** IMPROVED CHANNEL TRAVEL TIME ****
-------------------------------------------------------------------------------

Upstream point elevation =  1046.600(Ft.)
Downstream point elevation =  1046.140(Ft.)
Channel length thru subarea  =    70.000(Ft.)
Channel base width       =   10.000(Ft.)
Slope or 'Z' of left channel bank =   4.000
```

```
Slope or '%' of right channel bank =   4.000
Estimated mean flow rate at midpoint of channel =     4.584(CFS)
Manning's 'N'    = 0.030
Maximum depth of channel =     2.000(Ft.)
Flow(q) thru subarea =     4.584(CFS)
Depth of flow =   0.266(Ft.), Average velocity =   1.557(Ft/s)
Channel flow top width =   12.129(Ft.)
Flow Velocity =    1.56(Ft/s)
Travel time  =    0.75 min.
Time of concentration =   10.39 min.

Sub-Channel No. 1 Critical depth =      0.182(Ft.)
   '      '         '     Critical flow top width =    11.453(Ft.)
   '      '         '     Critical flow velocity=    2.353(Ft/s)
   '      '         '     Critical flow area =      1.948(Sq.Ft)

 Adding area flow to channel
COMMERCIAL subarea type
Runoff Coefficient = 0.888
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3)  =  84.40
Pervious area fraction =  0.100; Impervious fraction =  0.900
Rainfall intensity =      1.538(In/Hr) for a     2.0 year storm
Subarea runoff =      0.437(CFS) for      0.320(Ac.)
Total runoff =      4.789(CFS)      Total area =      3.330(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station        4.000 to Point/Station
5.000
      **** PIPEFLOW TRAVEL TIME (User specified size) ****
------------------------------------------------------------------------------

      Upstream point/station elevation =  1046.140(Ft.)
      Downstream point/station elevation =  1046.000(Ft.)
      Pipe length  =    56.64(Ft.)   Manning's N = 0.013
      No. of pipes = 1  Required pipe flow  =     4.789(CFS)
      Given pipe size =     24.00(In.)
      Calculated individual pipe flow  =     4.789(CFS)
      Normal flow depth in pipe =   10.93(In.)
      Flow top width inside pipe =   23.91(In.)
      Critical Depth =    9.24(In.)
      Pipe flow velocity =      3.44(Ft/s)
      Travel time through pipe =    0.27 min.
      Time of concentration (TC) =    10.67 min.


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++++
      Process from Point/Station        5.000 to Point/Station
12.000
      **** IMPROVED CHANNEL TRAVEL TIME ****
------------------------------------------------------------------------------

      Upstream point elevation =  1046.000(Ft.)
      Downstream point elevation =  1045.840(Ft.)
      Channel length thru subarea  =    71.650(Ft.)
```

```
Channel base width       =   10.000(Ft.)
Slope or 'Z' of left channel bank =   4.000
Slope or 'Z' of right channel bank =   4.000
Manning's 'N'    = 0.030
Maximum depth of channel  =    2.000(Ft.)
Flow(q) thru subarea =      4.789(CFS)
Depth of flow =   0.374(Ft.), Average velocity =   1.114(Ft/s)
Channel flow top width =   12.991(Ft.)
Flow Velocity =    1.11(Ft/s)
Travel time  =    1.07 min.
Time of concentration =   11.74 min.

Sub-Channel No. 1 Critical depth =      0.188(Ft.)
   '      '       '     Critical flow top width =     11.500(Ft.)
   '      '       '     Critical flow velocity=    2.376(Ft/s)
   '      '       '     Critical flow area =      2.016(Sq.Ft)


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++++
      Process from Point/Station        5.000 to Point/Station
12.000
      **** CONFLUENCE OF MAIN STREAMS ****
-----------------------------------------------------------------------------

      The following data inside Main Stream is listed:
      In Main Stream number: 1
      Stream flow area =      3.330(Ac.)
      Runoff from this stream =      4.789(CFS)
      Time of concentration =   11.74 min.
      Rainfall intensity =     1.439(In/Hr)
      Summary of stream data:

      Stream   Flow rate      TC            Rainfall Intensity
       No.       (CFS)       (min)                 (In/Hr)


      1        4.789     11.74                1.439
      Largest stream flow has longer time of concentration
      Qp =      4.789 + sum of
      Qp =      4.789

      Total of 1 main streams to confluence:
      Flow rates before confluence point:
            4.789
      Area of streams before confluence:
            3.330


      Results of confluence:
      Total flow rate =      4.789(CFS)
      Time of concentration =    11.739 min.
      Effective stream area after confluence  =      3.330(Ac.)

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++++
      Process from Point/Station        6.000 to Point/Station
7.000
      **** INITIAL AREA EVALUATION ****
```

```
Initial area flow distance =    389.600(Ft.)
Top (of initial area) elevation =  1057.000(Ft.)
Bottom (of initial area) elevation =  1052.500(Ft.)
Difference in elevation =      4.500(Ft.)
Slope =    0.01155  s(percent)=       1.16
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    7.959 min.
Rainfall intensity =      1.781(In/Hr) for a     2.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.889
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3)  =  84.40
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      1.077(CFS)
Total initial stream area =        0.680(Ac.)
Pervious area fraction = 0.100


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++++
Process from Point/Station        7.000 to Point/Station
8.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =  1049.000(Ft.)
Downstream point/station elevation =  1048.200(Ft.)
Pipe length  =   151.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     1.077(CFS)
Given pipe size =     24.00(In.)
Calculated individual pipe flow  =     1.077(CFS)
Normal flow depth in pipe =    4.16(In.)
Flow top width inside pipe =   18.17(In.)
Critical Depth =    4.27(In.)
Pipe flow velocity =      2.96(Ft/s)
Travel time through pipe =    0.85 min.
Time of concentration (TC) =     8.81 min.


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++++
Process from Point/Station        7.000 to Point/Station
8.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
COMMERCIAL subarea type
Runoff Coefficient = 0.889
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3)  =  84.40
Pervious area fraction =  0.100; Impervious fraction =  0.900
Time of concentration =     8.81 min.
Rainfall intensity =      1.685(In/Hr) for a     2.0 year storm
```

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      Subarea runoff =      3.128(CFS) for      2.090(Ac.)
      Total runoff =      4.205(CFS)      Total area =      2.770(Ac.)

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++++
      Process from Point/Station        8.000 to Point/Station
9.000
      **** IMPROVED CHANNEL TRAVEL TIME ****
-----------------------------------------------------------------------------

      Upstream point elevation =  1048.200(Ft.)
      Downstream point elevation =  1047.580(Ft.)
      Channel length thru subarea  =   150.000(Ft.)
      Channel base width           =    0.000(Ft.)
      Slope or 'Z' of left channel bank =   4.000
      Slope or 'Z' of right channel bank =   4.000
      Estimated mean flow rate at midpoint of channel =      5.116(CFS)
      Manning's 'N'    = 0.030
      Maximum depth of channel  =    7.000(Ft.)
      Flow(q) thru subarea =      5.116(CFS)
      Depth of flow =   0.851(Ft.), Average velocity =   1.766(Ft/s)
      Channel flow top width =    6.809(Ft.)
      Flow Velocity =    1.77(Ft/s)
      Travel time  =    1.42 min.
      Time of concentration =   10.23 min.

      Sub-Channel No. 1 Critical depth =      0.633(Ft.)
        '     '       '     Critical flow top width =      5.063(Ft.)
        '     '       '     Critical flow velocity=    3.194(Ft/s)
        '     '       '     Critical flow area =      1.602(Sq.Ft)

       Adding area flow to channel
      COMMERCIAL subarea type
      Runoff Coefficient = 0.888
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 3)  =  84.40
      Pervious area fraction =  0.100; Impervious fraction =  0.900
      Rainfall intensity =      1.552(In/Hr) for a     2.0 year storm
      Subarea runoff =      1.653(CFS) for      1.200(Ac.)
      Total runoff =      5.858(CFS)      Total area =      3.970(Ac.)


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station        8.000 to Point/Station
9.000
      **** CONFLUENCE OF MINOR STREAMS ****
-----------------------------------------------------------------------------

      Along Main Stream number: 1 in normal stream number 1
      Stream flow area =      3.970(Ac.)
      Runoff from this stream =      5.858(CFS)
      Time of concentration =   10.23 min.
      Rainfall intensity =     1.552(In/Hr)


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++++
      Process from Point/Station       14.000 to Point/Station
15.000
      **** INITIAL AREA EVALUATION ****
-------------------------------------------------------------------------
      Initial area flow distance =   101.000(Ft.)
      Top (of initial area) elevation =  1055.500(Ft.)
      Bottom (of initial area) elevation =  1051.150(Ft.)
      Difference in elevation =      4.350(Ft.)
      Slope =    0.04307 s(percent)=        4.31
      TC = k(0.300)*[(length^3)/(elevation change)]^0.2
      Warning: TC computed to be less than 5 min.; program is assuming
the
      time of concentration is 5 minutes.
      Initial area time of concentration =     5.000 min.
      Rainfall intensity =       2.300(In/Hr) for a      2.0 year storm
      COMMERCIAL subarea type
      Runoff Coefficient = 0.891
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 3)  =  84.40
      Pervious area fraction =  0.100; Impervious fraction =  0.900
      Initial subarea runoff =       0.513(CFS)
      Total initial stream area =        0.250(Ac.)
      Pervious area fraction = 0.100

      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station       15.000 to Point/Station
16.000
      **** PIPEFLOW TRAVEL TIME (User specified size) ****
-------------------------------------------------------------------------
      Upstream point/station elevation =  1051.150(Ft.)
      Downstream point/station elevation =  1049.300(Ft.)
      Pipe length =   185.00(Ft.)   Manning's N = 0.013
      No. of pipes = 1  Required pipe flow =      0.513(CFS)
      Given pipe size =     18.00(In.)
      Calculated individual pipe flow  =      0.513(CFS)
      Normal flow depth in pipe =    2.71(In.)
      Flow top width inside pipe =   12.87(In.)
      Critical depth could not be calculated.
      Pipe flow velocity =       3.08(Ft/s)
      Travel time through pipe =    1.00 min.
      Time of concentration (TC) =     6.00 min.

      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station       15.000 to Point/Station
16.000
      **** SUBAREA FLOW ADDITION ****
-------------------------------------------------------------------------
      COMMERCIAL subarea type
      Runoff Coefficient = 0.890
      Decimal fraction soil group A = 0.000
```

```
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3)  =  84.40
Pervious area fraction =  0.100; Impervious fraction =  0.900
Time of concentration =      6.00 min.
Rainfall intensity =      2.080(In/Hr) for a     2.0 year storm
Subarea runoff =      0.370(CFS) for      0.200(Ac.)
Total runoff =      0.883(CFS)      Total area =      0.450(Ac.)

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
Process from Point/Station       16.000 to Point/Station
9.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
------------------------------------------------------------------------------
Upstream point/station elevation = 1049.300(Ft.)
Downstream point/station elevation = 1048.000(Ft.)
Pipe length =   130.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow =    0.883(CFS)
Given pipe size =     18.00(In.)
Calculated individual pipe flow =     0.883(CFS)
Normal flow depth in pipe =    3.53(In.)
Flow top width inside pipe =   14.29(In.)
Critical Depth =    4.19(In.)
Pipe flow velocity =      3.61(Ft/s)
Travel time through pipe =    0.60 min.
Time of concentration (TC) =     6.60 min.


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++++
Process from Point/Station       16.000 to Point/Station
9.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      0.450(Ac.)
Runoff from this stream =      0.883(CFS)
Time of concentration =    6.60 min.
Rainfall intensity =     1.974(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)               (In/Hr)


1         5.858      10.23                  1.552
2         0.883       6.60                  1.974
Largest stream flow has longer time of concentration
Qp =      5.858 + sum of
        Qb          Ia/Ib
         0.883 *    0.786 =      0.694
Qp =      6.552

Total of 2 streams to confluence:
Flow rates before confluence point:
       5.858       0.883
```

```
      Area of streams before confluence:
            3.970        0.450
      Results of confluence:
      Total flow rate =       6.552(CFS)
      Time of concentration =     10.225 min.
      Effective stream area after confluence =       4.420(Ac.)


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station        9.000 to Point/Station
10.000
      **** PIPEFLOW TRAVEL TIME (User specified size) ****
      ------------------------------------------------------------------------
---
      Upstream point/station elevation =  1047.580(Ft.)
      Downstream point/station elevation =  1046.850(Ft.)
      Pipe length  =    63.13(Ft.)   Manning's N = 0.013
      No. of pipes = 1  Required pipe flow  =     6.552(CFS)
      Given pipe size =     24.00(In.)
      Calculated individual pipe flow  =     6.552(CFS)
      Normal flow depth in pipe =    8.51(In.)
      Flow top width inside pipe =   22.96(In.)
      Critical Depth =   10.88(In.)
      Pipe flow velocity =      6.57(Ft/s)
      Travel time through pipe =    0.16 min.
      Time of concentration (TC) =    10.39 min.


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station       10.000 to Point/Station
11.000
      **** IMPROVED CHANNEL TRAVEL TIME ****
      ------------------------------------------------------------------------
---
      Upstream point elevation =  1046.850(Ft.)
      Downstream point elevation =  1046.420(Ft.)
      Channel length thru subarea  =    93.000(Ft.)
      Channel base width       =    0.000(Ft.)
      Slope or 'Z' of left channel bank =   4.000
      Slope or 'Z' of right channel bank =   4.000
      Estimated mean flow rate at midpoint of channel =      6.834(CFS)
      Manning's 'N'    = 0.030
      Maximum depth of channel  =    4.000(Ft.)
      Flow(q) thru subarea =      6.834(CFS)
      Depth of flow =   0.929(Ft.), Average velocity =   1.980(Ft/s)
      Channel flow top width =    7.432(Ft.)
      Flow Velocity =    1.98(Ft/s)
      Travel time  =    0.78 min.
      Time of concentration =   11.17 min.

      Sub-Channel No. 1 Critical depth =      0.711(Ft.)
        '     '       '     Critical flow top width =      5.688(Ft.)
        '     '       '     Critical flow velocity=    3.380(Ft/s)
        '     '       '     Critical flow area =      2.022(Sq.Ft)

       Adding area flow to channel
      COMMERCIAL subarea type
      Runoff Coefficient = 0.887
      Decimal fraction soil group A = 0.000
```

```
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 3)  =  84.40
      Pervious area fraction =  0.100; Impervious fraction =  0.900
      Rainfall intensity =      1.478(In/Hr) for a     2.0 year storm
      Subarea runoff =      0.498(CFS) for      0.380(Ac.)
      Total runoff =      7.051(CFS)      Total area =      4.800(Ac.)

      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station       11.000 to Point/Station
12.000
      **** PIPEFLOW TRAVEL TIME (User specified size) ****
      ------------------------------------------------------------------------
---
      Upstream point/station elevation =  1046.420(Ft.)
      Downstream point/station elevation =  1046.200(Ft.)
      Pipe length  =    96.00(Ft.)  Manning's N = 0.013
      No. of pipes = 1  Required pipe flow  =     7.051(CFS)
      Given pipe size =    24.00(In.)
      Calculated individual pipe flow  =     7.051(CFS)
      Normal flow depth in pipe =   14.11(In.)
      Flow top width inside pipe =   23.63(In.)
      Critical Depth =   11.31(In.)
      Pipe flow velocity =      3.67(Ft/s)
      Travel time through pipe =    0.44 min.
      Time of concentration (TC) =    11.60 min.

      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station       11.000 to Point/Station
12.000
      **** SUBAREA FLOW ADDITION ****
      ------------------------------------------------------------------------
---
      COMMERCIAL subarea type
      Runoff Coefficient = 0.887
      Decimal fraction soil group A = 0.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 1.000
      Decimal fraction soil group D = 0.000
      RI index for soil(AMC 3)  =  84.40
      Pervious area fraction =  0.100; Impervious fraction =  0.900
      Time of concentration =   11.60 min.
      Rainfall intensity =      1.448(In/Hr) for a     2.0 year storm
      Subarea runoff =      0.475(CFS) for      0.370(Ac.)
      Total runoff =      7.526(CFS)      Total area =      5.170(Ac.)

      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station       12.000 to Point/Station
13.000
      **** IMPROVED CHANNEL TRAVEL TIME ****
      ------------------------------------------------------------------------
---
      Upstream point elevation =  1046.200(Ft.)
      Downstream point elevation =  1045.840(Ft.)
```

```
Channel length thru subarea  =    52.000(Ft.)
Channel base width           =    10.000(Ft.)
Slope or 'Z' of left channel bank =   4.000
Slope or 'Z' of right channel bank =   4.000
Estimated mean flow rate at midpoint of channel =      7.730(CFS)
Manning's 'N'    = 0.030
Maximum depth of channel  =     2.000(Ft.)
Flow(q) thru subarea =       7.730(CFS)
Depth of flow =   0.355(Ft.), Average velocity =   1.904(Ft/s)
Channel flow top width =   12.844(Ft.)
Flow Velocity =    1.90(Ft/s)
Travel time  =    0.46 min.
Time of concentration =   12.06 min.

Sub-Channel No. 1 Critical depth =      0.256(Ft.)
  '      '        '     Critical flow top width =     12.047(Ft.)
  '      '        '     Critical flow velocity=    2.741(Ft/s)
  '      '        '     Critical flow area =      2.820(Sq.Ft)

 Adding area flow to channel
COMMERCIAL subarea type
Runoff Coefficient = 0.887
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3)  =  84.40
Pervious area fraction =  0.100; Impervious fraction =  0.900
Rainfall intensity =      1.417(In/Hr) for a     2.0 year storm
Subarea runoff =      0.352(CFS) for      0.280(Ac.)
Total runoff =      7.878(CFS)      Total area =      5.450(Ac.)


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++++
Process from Point/Station       12.000 to Point/Station
13.000
**** CONFLUENCE OF MAIN STREAMS ****
--------------------------------------------------------------------------------

The following data inside Main Stream is listed:
In Main Stream number: 2
Stream flow area =      5.450(Ac.)
Runoff from this stream =      7.878(CFS)
Time of concentration =   12.06 min.
Rainfall intensity =     1.417(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                (In/Hr)


1         4.789      11.74                 1.439
2         7.878      12.06                 1.417
Largest stream flow has longer time of concentration
Qp =      7.878 + sum of
        Qb          Ia/Ib
         4.789 *     0.985 =       4.719
Qp =     12.597

Total of 2 main streams to confluence:
```

Flow rates before confluence point:
4.789 7.878
Area of streams before confluence:
3.330 5.450

Results of confluence:
Total flow rate = 12.597(CFS)
Time of concentration = 12.060 min.
Effective stream area after confluence = 8.780(Ac.)
End of computations, total study area = 8.780 (Ac.)

Appendix D

Educational Materials

Employee Education Log

Name (Printed)	Name (Signed)	Date training provided (M/D/Y)

After the Storm

A Citizen's Guide to Understanding Stormwater

What is stormwater runoff?

Stormwater runoff occurs when precipitation from rain or snowmelt flows over the ground. Impervious surfaces like driveways, sidewalks, and streets prevent stormwater from naturally soaking into the ground.

Why is stormwater runoff a problem?

Stormwater can pick up debris, chemicals, dirt, and other pollutants and flow into a storm sewer system or directly to a lake, stream, river, wetland, or coastal water. Anything that enters a storm sewer system is discharged untreated into the waterbodies we use for swimming, fishing, and providing drinking water.

The effects of pollution

Polluted stormwater runoff can have many adverse effects on plants, fish, animals, and people.

- Sediment can cloud the water and make it difficult or impossible for aquatic plants to grow. Sediment also can destroy aquatic habitats
- Excess nutrients can cause algae blooms. When algae die, they sink to the bottom and decompose in a process that removes oxygen from the water. Fish and other aquatic organisms can't exist in water with low dissolved oxygen levels.
- Bacteria and other pathogens can wash into swimming areas and create health hazards, often making beach closures necessary.
- Debris—plastic bags, six-pack rings, bottles, and cigarette butts—washed into waterbodies can choke, suffocate, or disable aquatic life like ducks, fish, turtles, and birds
- Household hazardous wastes like insecticides, pesticides, paint, solvents, used motor oil, and other auto fluids can poison aquatic life. Land animals and people can become sick or die from eating diseased fish and shellfish or ingesting polluted water.

- Polluted stormwater often affects drinking water sources. This, in turn, can affect human health and increase drinking water treatment costs.

EPA 833-B-03-002
January 2003

For more information contact:

or visit
www.epa.gov/npdes/stormwater
www.epa.gov/nps

Stormwater Pollution Solutions

Residential



Recycle or properly dispose of household products that contain chemicals such as insecticides, pesticides, paint, solvents, and used motor oil and other auto fluids. Don't pour them onto the ground or into storm drains.

Lawn care



Excess fertilizers and pesticides applied to lawns and gardens wash off and pollute streams. In addition, yard clippings and leaves can wash into storm drains and contribute nutrients and organic matter to streams.

- Don't overwater your lawn. Consider using a soaker hose instead of a sprinkler.
- Use pesticides and fertilizers sparingly. When use is necessary, use these chemicals in the recommended amounts. Use organic mulch or safer pest control methods whenever possible.
- Compost or mulch yard waste. Don't leave it in the street or sweep it into storm drains or streams.
- Cover piles of dirt or mulch being used in landscaping projects.

Auto care



Washing your car and degreasing auto parts at home can send detergents and other contaminants through the storm sewer system. Dumping automotive fluids into storm drains has the same result as dumping the materials directly into a waterbody.

- Use a commercial car wash that treats or recycles its wastewater, or wash your car on your yard so the water infiltrates into the ground.
- Repair leaks and dispose of used auto fluids and batteries at designated drop-off or recycling locations.

Septic systems



Leaking and poorly maintained septic systems release nutrients and pathogens (bacteria and viruses) that can be picked up by stormwater and discharged into nearby waterbodies. Pathogens can cause public health problems and environmental concerns.

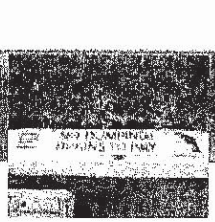
- Inspect your system every 3 years and pump your tank as necessary (every 3 to 5 years).
- Don't dispose of household hazardous waste in sinks or toilets.

Pet waste



Pet waste can be a major source of bacteria and excess nutrients in local waters.

- When walking your pet, remember to pick up the waste and dispose of it properly. Flushing pet waste is the best disposal method. Leaving pet waste on the ground increases public health risks by allowing harmful bacteria and nutrients to wash into the storm drain and eventually into local waterbodies.

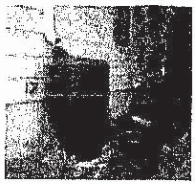


Education is essential to changing people's behavior. Signs and markers near storm drains warn residents that pollutants entering the drains will be carried untreated into a local waterbody.

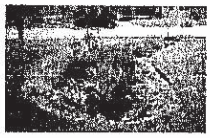
Residential landscaping

Permeable Pavement—Traditional concrete and asphalt don't allow water to soak into the ground. Instead these surfaces rely on storm drains to divert unwanted water. Permeable pavement systems allow rain and snowmelt to soak through decreasing stormwater runoff.

Rain Barrels—You can collect rainwater from rooftops in mosquito-proof containers. The water can be used later on lawn or garden areas.



Rain Gardens and Grassy Swales—Specially designed areas planted with native plants can provide natural places for rainwater to collect and soak into the ground. Rain from rooftop areas or paved areas can be diverted into these areas rather than into storm drains.



Vegetated Filter Strips—Filter strips are areas of native grass or plants created along roadways or streams. They trap the pollutants stormwater picks up as it flows across driveways and streets.

Commercial



Dirt, oil, and debris that collect in parking lots and paved areas can be washed into the storm sewer system and eventually enter local waterbodies.

- Sweep up litter and debris from sidewalks, driveways and parking lots, especially around storm drains.
- Cover grease storage and dumpsters and keep them clean to avoid leaks.
- Report any chemical spill to the local hazardous waste cleanup team. They'll know the best way to keep spills from harming the environment.

Construction



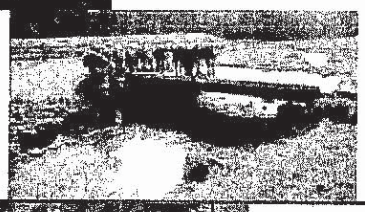
Erosion controls that aren't maintained can cause excessive amounts of sediment and debris to be carried into the stormwater system. Construction vehicles can leak fuel, oil, and other harmful fluids that can be picked up by stormwater and deposited into local waterbodies.

- Divert stormwater away from disturbed or exposed areas of the construction site.
- Install silt fences, vehicle mud removal areas, vegetative cover, and other sediment and erosion controls and properly maintain them, especially after rainstorms.
- Prevent soil erosion by minimizing disturbed areas during construction projects, and seed and mulch bare areas as soon as possible.

Agriculture



Lack of vegetation on streambanks can lead to erosion. Overgrazed pastures can also contribute excessive amounts of sediment to local waterbodies. Excess fertilizers and pesticides can poison aquatic animals and lead to destructive algae blooms. Livestock in streams can contaminate waterways with bacteria, making them unsafe for human contact.



- Keep livestock away from streambanks and provide them a water source away from waterbodies.
- Store and apply manure away from waterbodies and in accordance with a nutrient management plan.
- Vegetate riparian areas along waterways.
- Rotate animal grazing to prevent soil erosion in fields.
- Apply fertilizers and pesticides according to label instructions to save money and minimize pollution.

Automotive Facilities



Uncovered fueling stations allow spills to be washed into storm drains. Cars waiting to be repaired can leak fuel, oil, and other harmful fluids that can be picked up by stormwater.

- Clean up spills immediately and properly dispose of cleanup materials.
- Provide cover over fueling stations and design or retrofit facilities for spill containment.
- Properly maintain fleet vehicles to prevent oil, gas, and other discharges from being washed into local waterbodies.
- Install and maintain oil/water separators.

Forestry



Improperly managed logging operations can result in erosion and sedimentation.

- Conduct preharvest planning to prevent erosion and lower costs.
- Use logging methods and equipment that minimize soil disturbance.
- Plan and design skid trails, yard areas, and truck access roads to minimize stream crossings and avoid disturbing the forest floor.
- Construct stream crossings so that they minimize erosion and physical changes to streams.
- Expedite revegetation of cleared areas.

Helpful telephone numbers and links:

RIVERSIDE COUNTY WATER AGENCIES

City of Banning	(951) 922-3130
City of Beaumont/Cherry Valley	(951) 845-9581
City of Blythe	(760) 922-6161
City of Coachella	(760) 398-3502
City of Corona	(951) 736-2263
City of Hemet	(951) 765-3710
City of Norco	(951) 270 5607
City of Riverside Public Works	(951) 351-6140
City of San Jacinto	(951) 654-4041
Coachella Valley Water District	(760) 398-2651
Desert Water Agency (Palm Springs)	(760) 323-4971
Eastern Municipal Water District	(951) 928-3777
Elsinore Valley Municipal Water District	(951) 674 3146
Elsinore Water District	(951) 674-2168
Farm Mutual Water Company	(951) 244-4198
Idyllwild Water District	(951) 659-2143
Indio Water Authority	(760) 391-4129
Jurupa Community Services District	(951) 685-7434
Lee Lake Water	(951) 658-3241
Mission Springs Water	(760) 329-6448
Rancho California Water District	(951) 296-6900
Ripley, CSA #62	(760) 922-4951
Riverside Co. Service Area #51	(760) 227-3203
Rubidoux Community Services District	(951) 684-7580
Valley Sanitary District	(760) 347-2356
Western Municipal Water District	(951) 789-5000
Yucaipa Valley Water District	(909) 797-5117

REPORT ILLEGAL STORM DRAIN DISPOSAL
1-800-506-2555 or e-mail us at
fcnpdes@rcflood.org

- Riverside County Flood Control and Water Conservation District
  www.rcflood.org

Online resources include:

- California Storm Water Quality Association
  www.casqa.org
- State Water Resources Control Board
  www.waterboards.ca.gov
- Power Washers of North America
  www.thepwna.org

Stormwater Pollution

What you should know for...

Outdoor Cleaning Activities and Professional Mobile Service Providers



Storm drain pollution prevention information for:

- Car Washing / Mobile Detailers
- Window and Carpet Cleaners
- Power Washers
- Waterproofers / Street Sweepers
- Equipment cleaners or degreasers and all mobile service providers

Do you know where street flows actually go?

Storm drains are NOT connected to sanitary sewer systems and treatment plants!



The primary purpose of storm drains is to carry rain water away from developed areas to prevent flooding. Pollutants discharged to storm drains are transported directly into rivers, lakes and streams. Soaps, degreasers, automotive fluids, litter and a host of materials are washed off buildings, sidewalks, plazas and parking areas. Vehicles and equipment must be properly managed to prevent the pollution of local waterways.

Unintentional spills by mobile service operators can flow into storm drains and pollute our waterways. **Avoid mishaps.** *Always* have a **Spill Response Kit** on hand to clean up unintentional spills. Only emergency Mechanical repairs should be done in City streets, using drip pans for spills. Plumbing should be done on private property. Always store chemicals in a leak-proof container and keep covered when not in use. Window/Power Washing waste water shouldn't be released into the streets, but should be disposed of in a sanitary sewer, landscaped area or in the soil. Soiled Carpet Cleaning wash water should be filtered before being discharged into the sanitary sewer. Dispose of all filter debris properly. Car Washing/Detailing operators should wash cars on private property and use a regulated hose nozzle for water flow control and runoff prevention. Capture and dispose of waste water and chemicals properly. Remember, storm drains are for receiving rain water runoff only.

REPORT ILLEGAL STORM DRAIN DISPOSAL 1-800-506-2555

Help Protect Our Waterways!

Use these guidelines for Outdoor Cleaning Activities and Wash Water Disposal

Did you know that disposing of pollutants into the street, gutter, storm drain or body of water is *PROHIBITED* by law and can result in stiff penalties?

Best Management Practices

Waste wash water from Mechanics, Plumbers, Window/Power Washers, Carpet Cleaners, Car Washing and Mobile Detailing activities may contain significant quantities of motor oil, grease, chemicals, dirt, detergents, brake pad dust, litter and other materials.

Best Management Practices, or BMPs as they are known, are guides to prevent pollutants from entering the storm drains. *Each of us* can do our part to keep storm water clean by using the suggested BMPs below:

Simple solutions for both light and heavy duty jobs:

Do...consider dry cleaning methods first such as a mop, broom, rag or wire brush. Always keep a spill response kit on site.

Do...prepare the work area before power cleaning by using sand bags, rubber mats, vacuum booms, containment pads or temporary berms to keep wash water away from the gutters and storm drains.

Do...use vacuums or other machines to remove and collect loose debris or litter before applying water.

Do...obtain the property owner's permission to dispose of *small amounts* of power washing waste water on to landscaped, gravel or unpaved surfaces.

Do...check your local sanitary sewer agency's policies on wash water disposal regulations before disposing wash water to the sewer. (See list on reverse side)

Do...be aware that if discharging to landscape areas, soapy wash water may damage landscaping. Residual wash water may remain on paved surfaces to evaporate. Sweep up solid residuals and dispose of properly. Vacuum booms are another option for capturing and collecting wash water.

Do...check to see if local ordinances prevent certain activities.

Do not let...wash or waste water from sidewalk, plaza or building cleaning go into a street or storm drain.



Report illegal storm drain disposal,
Call Toll Free
1-800-506-2555

Using Cleaning Agents

Try using biodegradable/phosphate-free products. They are easier on the environment, but don't confuse them for being toxic free. Soapy water entering the storm drain system can impact the delicate aquatic environment.



When cleaning surfaces with a ***high-pressure washer*** or ***steam cleaner***, additional precautions should be taken to prevent the discharge of pollutants into the storm drain system. These two methods of surface cleaning can loosen additional material that can contaminate local waterways.

Think Water Conservation

Minimize water use by using high pressure, low volume nozzles. Be sure to check all hoses for leaks. Water is a precious resource, don't let it flow freely and be sure to shut it off in between uses.

Screening Wash Water

Conduct thorough dry cleanup before washing exterior surfaces, such as buildings and decks ***with loose paint***, sidewalks or plaza areas. Keep debris from entering the storm drain after cleaning by first passing the wash water through a "20 mesh" or finer screen to catch the solid materials, then dispose of the mesh in a refuse container. Do not let the remaining wash water enter a street, gutter or storm drain.

Drain Inlet Protection & Collection of Wash Water

- Prior to any washing, block all storm drains with an impervious barrier such as sandbags or berms, or seal the storm drain with plugs or other appropriate materials.
- Create a containment area with berms and traps or take advantage of a low spot to keep wash water contained.
- Wash vehicles and equipment on grassy or gravel areas so that the wash water can seep into the ground.
- Pump or vacuum up all wash water in the contained area.

Concrete/Coring/Saw Cutting and Drilling Projects

Protect any down-gradient inlet by using dry activity techniques whenever possible. If water is used, minimize the amount of water used during the coring/drilling or saw cutting process. Place a barrier of sandbags and/or absorbent berms to protect the storm drain inlet or watercourse. Use a shovel or wet vacuum to remove the residue from the pavement. Do not wash residue or particulate matter into a storm drain inlet or watercourse.

Stormwater Pollution

What you should know for...

Industrial & Commercial Facilities

Best Management Practices (BMPS) for:

- Industrial
- Commercial Facilities



Riverside County Stormwater Members

Flood Control District
(Lead Agency)
(951) 955-1250

County of Riverside
(951) 955-1000

City of Banning
(951) 922-3130

City of Beaumont
(951) 769-8520

City of Calimesa
(909) 795-9801

City of Canyon Lake
(951) 244-2955

Cathedral City
(760) 770-0349

City of Coachella
(760) 398-3502

City of Corona
(951) 736-2248

City of Desert Hot Springs
(760) 329-6411

City of Hemet
(951) 765-2300

City of Indian Wells
(760) 346-2489

City of San Jacinto
(951) 487-7330

City of Indio
(760) 391-4000

City of Lake Elsinore
(951) 674-3124

City of La Quinta
(760) 777-7000

City of Menifee
(951) 672-6777

City of Moreno Valley
(951) 413-3120

City of Murrieta
(951) 304-2489

City of Norco
(951) 735-3900

City of Palm Desert
(760) 346-0611

City of Palm Springs
(760) 323-8253

City of Perris
(951) 943-6100

City of Rancho Mirage
(760) 324-4511

City of Riverside
(951) 926-5311

City of Temecula
(951) 694-6444

City of Wildomar
(951) 677-7751

Coachella Valley Water District
(760) 398-2651

The Riverside County "Only Rain Down the Storm Drain" Pollution Prevention Program gratefully acknowledges San Bernardino County's Stormwater Program for their contribution to this brochure.

YOU can prevent Stormwater Pollution following these practices...

Industrial and Commercial Facilities

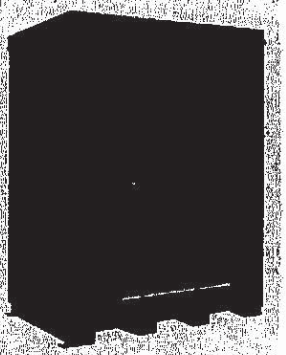
To reduce the amount of pollutants reaching our storm drain system, which leads to many of our water bodies, the Riverside County Stormwater Program has developed Best Management Practices (BMPs) for Industrial and Commercial Facilities. City and County ordinances require that businesses comply with these BMPs, where applicable, to protect local water quality. Local cities and the County are required to verify implementation of these BMPs by performing regular facility inspections.

Prohibited Discharges

- Discontinue all non-stormwater discharges to the storm drain system. It is *prohibited* to discharge any chemicals, paints, lumber, debris, wastes or wastewater into the gutter, street or storm drain.

Outdoor Storage

- Install covers and secondary containment areas for all hazardous materials and wastes stored outdoors in accordance with County and/or City standards.
- Keep all temporary waste containers covered, at all times, except when actively using.
- Sweep outdoor areas instead of using a hose or pressure washer.
- Move all process operations including vehicle and equipment maintenance inside of the building or into a covered and contained area.
- Wash equipment and vehicles in a contained and covered wash bay which is closed-loop or connected to a clarifier sized to local standards, then discharged to a sanitary sewer or take them to a commercial car wash.



Spills and Clean Ups

- Keep the work site clean and orderly. Remove debris in a timely fashion. Sweep up the area.
- Clean up spills immediately when they occur, using dry clean up methods such as absorbent materials or sweep, followed by proper disposal of materials.
- Always have a spill kit available near chemical loading dock doors and vehicle maintenance and fueling areas.
- Follow your Business Emergency Plan, as filed with the County Fire Department.
- Report all prohibited discharges and non-implementation of BMPs to your local Stormwater Coordinator as listed on the back of this pamphlet.
- Report hazardous materials spills to 951-358-5055 or 1-800-304-2226 or call your your local Fire Department Hazmat Team at 911.



Plastic Manufacturing Facilities

AB 258 requires plastic product manufacturers to use best management practices, such as safe storage and clean-up procedures to prevent plastic pellets (nurdles) from entering the waterway. The plastic pellets are released into the environment during transporting, packaging and processing and migrate to waterways through the storm drain system. AB 258 will help protect fish and wildlife from the hazards of plastic pollution.

Training

As prescribed by your local and County Stormwater Ordinance(s), train employees in spill procedures and prohibit non-stormwater discharges to the storm drain system. Applicable Best Management Practice examples can be found at www.cabmphandbooks.com.

Permitting

Stormwater discharges associated with specific categories for commercial and industrial facilities are regulated by the State Water Resources Control Board (SWRCB) through an Industrial Stormwater General Permit. A copy of the General Permit and application forms are available at: www.waterboards.ca.gov, then select stormwater.

To report illegal dumping or for more information on stormwater pollution prevention call: 1-800-506-2555 or e-mail us at: fcnpdes@rcflood.org.

For Information:

For information on "closed-loop" suppliers and recycling/disposal vendors, contact:
County of Riverside
Health Services Agency
Department of Environmental Health
at (909) 358-5055.

SPILL RESPONSE AGENCY:
HAZ-MAT. (909) 358-5055
AFTER 5:00 P.M. (909) 358-5245 OR 911
HAZARDOUS WASTE DISPOSAL: (909) 358-5055
RECYCLING INFORMATION: 1-800-366-SAVE
TO REPORT ILLEGAL DUMPING OR A CLOGGED STORM DRAIN: 1-800-506-2555

To order additional brochures or to obtain information on other pollution prevention activities, call: (909) 955-1111.

The Cities and County of Riverside
StormWater/CleanWater Protection Program
1-800-506-2555

StormWater
CleanWater
PROTECTION PROGRAM

Riverside County gratefully acknowledges the Santa Clara Valley Nonpoint Source Pollution Control Program, Alameda Countywide Clean Water Program and the San Bernardino County Stormwater Program for information provided in this brochure.

StormWater Pollution

What you should know for...

THE FOOD SERVICE INDUSTRY



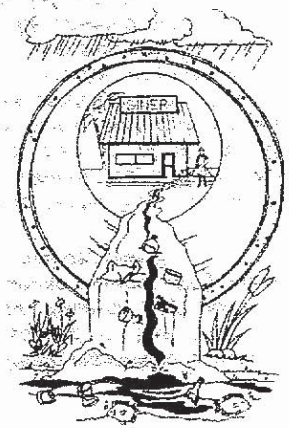
Best Management Practices (BMPs) for:

- Restaurants
- Grocery Stores
- Delicatessens
- Bakeries

StormWater Pollution . . . What You Should Know

Riverside County has two drainage systems - sanitary sewers and storm drains. The storm drain system is designed to help prevent flooding by carrying excess rainwater away from streets. Since the storm drain system does not provide for water treatment, it also serves the *unintended* function of transporting pollutants directly to our waterways.

Unlike sanitary sewers, storm drains are not connected to a treatment plant - they flow directly to our local streams, rivers and lakes.



Waste or washwater generated by the food service industry often contains materials such as food wastes, oil, grease, detergents, and degreasers. These materials can degrade local waters when allowed to flow into a storm drain system.

Stormwater pollution causes as much as 60% of our water pollution problem. It jeopardizes the quality of our waterways and poses a threat to groundwater resources if pollutants percolate through soil.

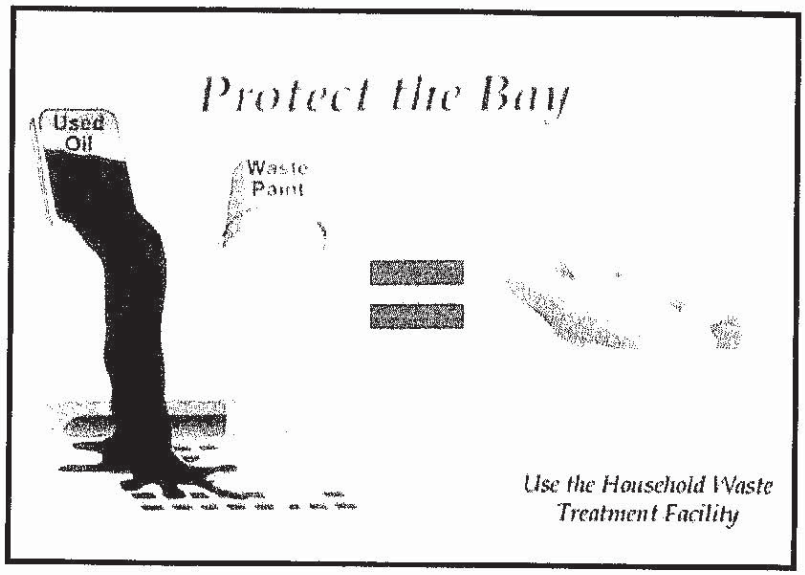
The Cities and County of Riverside StormWater/CleanWater Protection Program

Since preventing pollution is much easier, and less costly, than cleaning up "after the fact," the Cities and County of Riverside StormWater/CleanWater Protection Program informs residents and businesses on pollution prevention activities such as the Best Management Practices (BMPs) described in this pamphlet.

The Cities and County of Riverside have adopted ordinances for stormwater management and discharge control. In accordance with state and federal law, these local stormwater ordinances prohibit the discharge of wastes into the storm drain system or local surface waters. This includes discharges from the food service industry containing food wastes, oil, grease, detergents, and degreasers.

PLEASE NOTE: A common stormwater pollution problem associated with the food service industry is the discharge of washwater into alleys and gutters, and the hosing down of outdoor areas. Often, these activities flush pollutants into the storm drain system. The discharges of pollutants is ***strictly prohibited*** by local ordinances and state and federal regulations.

Non-Stormwater Discharges SC-10



Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Description

Non-stormwater discharges are those flows that do not consist entirely of stormwater. Some non-stormwater discharges do not include pollutants and may be discharged to the storm drain. These include uncontaminated groundwater and natural springs. There are also some non-stormwater discharges that typically do not contain pollutants and may be discharged to the storm drain with conditions. These include car washing, air conditioner condensate, etc. However there are certain non-stormwater discharges that pose environmental concern. These discharges may originate from illegal dumping or from internal floor drains, appliances, industrial processes, sinks, and toilets that are connected to the nearby storm drainage system. These discharges (which may include: process waste waters, cooling waters, wash waters, and sanitary wastewater) can carry substances such as paint, oil, fuel and other automotive fluids, chemicals and other pollutants into storm drains. They can generally be detected through a combination of detection and elimination. The ultimate goal is to effectively eliminate non-stormwater discharges to the stormwater drainage system through implementation of measures to detect, correct, and enforce against illicit connections and illegal discharges of pollutants on streets and into the storm drain system and creeks.

Targeted Constituents

Sediment	
Nutrients	✓
Trash	
Metals	✓
Bacteria	✓
Oil and Grease	✓
Organics	✓

Approach

Initially the industry must make an assessment of non-stormwater discharges to determine which types must be eliminated or addressed through BMPs. The focus of the following approach is in the elimination of non-stormwater discharges.

CASQA California Stormwater Quality Association

Pollution Prevention

- Ensure that used oil, used antifreeze, and hazardous chemical recycling programs are being implemented. Encourage litter control.

Suggested Protocols

Recommended Complaint Investigation Equipment

- Field Screening Analysis
  - pH paper or meter
  - Commercial stormwater pollutant screening kit that can detect for reactive phosphorus, nitrate nitrogen, ammonium nitrogen, specific conductance, and turbidity
  - Sample jars
  - Sample collection pole
  - A tool to remove access hole covers
- Laboratory Analysis
  - Sample cooler
  - Ice
  - Sample jars and labels
  - Chain of custody forms
- Documentation
  - Camera
  - Notebook
  - Pens
  - Notice of Violation forms
  - Educational materials

General

- Develop clear protocols and lines of communication for effectively prohibiting non-stormwater discharges, especially those that are not classified as hazardous. These are often not responded to as effectively as they need to be.
- Stencil or demarcate storm drains, where applicable, to prevent illegal disposal of pollutants. Storm drain inlets should have messages such as "Dump No Waste Drains to Stream" stenciled or demarcated next to them to warn against ignorant or intentional dumping of pollutants into the storm drainage system.

- See SC44 Stormwater Drainage System Maintenance for additional information.

Illicit Connections

- Locate discharges from the industrial storm drainage system to the municipal storm drain system through review of "as-built" piping schematics.
- Isolate problem areas and plug illicit discharge points.
- Locate and evaluate all discharges to the industrial storm drain system.

Visual Inspection and Inventory

- Inventory and inspect each discharge point during dry weather.
- Keep in mind that drainage from a storm event can continue for a day or two following the end of a storm and groundwater may infiltrate the underground stormwater collection system. Also, non-stormwater discharges are often intermittent and may require periodic inspections.

Review Infield Piping

- A review of the "as-built" piping schematic is a way to determine if there are any connections to the stormwater collection system.
- Inspect the path of floor drains in older buildings.

Smoke Testing

- Smoke testing of wastewater and stormwater collection systems is used to detect connections between the two systems.
- During dry weather the stormwater collection system is filled with smoke and then traced to sources. The appearance of smoke at the base of a toilet indicates that there may be a connection between the sanitary and the stormwater system.

Dye Testing

- A dye test can be performed by simply releasing a dye into either your sanitary or process wastewater system and examining the discharge points from the stormwater collection system for discoloration.

TV Inspection of Drainage System

- TV Cameras can be employed to visually identify illicit connections to the industrial storm drainage system.

Illegal Dumping

- Regularly inspect and clean up hot spots and other storm drainage areas where illegal dumping and disposal occurs.
- On paved surfaces, clean up spills with as little water as possible. Use a rag for small spills, a damp mop for general cleanup, and absorbent material for larger spills. If the spilled material is hazardous, then the used cleanup materials are also hazardous and must be sent to a certified laundry (rags) or disposed of as hazardous waste.

- Never hose down or bury dry material spills. Sweep up the material and dispose of properly.
- Use adsorbent materials on small spills rather than hosing down the spill. Remove the adsorbent materials promptly and dispose of properly.
- For larger spills, a private spill cleanup company or Hazmat team may be necessary.

Once a site has been cleaned:

- Post "No Dumping" signs with a phone number for reporting dumping and disposal.
- Landscaping and beautification efforts of hot spots may also discourage future dumping, as well as provide open space and increase property values.
- Lighting or barriers may also be needed to discourage future dumping.
- See fact sheet SC11 Spill Prevention, Control, and Cleanup.

Inspection

- Regularly inspect and clean up hot spots and other storm drainage areas where illegal dumping and disposal occurs.
- Conduct field investigations of the industrial storm drain system for potential sources of non-stormwater discharges.
- Pro-actively conduct investigations of high priority areas. Based on historical data, prioritize specific geographic areas and/or incident type for pro-active investigations.

Reporting

- A database is useful for defining and tracking the magnitude and location of the problem.
- Report prohibited non-stormwater discharges observed during the course of normal daily activities so they can be investigated, contained, and cleaned up or eliminated.
- Document that non-stormwater discharges have been eliminated by recording tests performed, methods used, dates of testing, and any on-site drainage points observed.
- Document and report annually the results of the program.
- Maintain documentation of illicit connection and illegal dumping incidents, including significant conditionally exempt discharges that are not properly managed.

Training

- Training of technical staff in identifying and documenting illegal dumping incidents is required.
- Consider posting the quick reference table near storm drains to reinforce training.
- Train employees to identify non-stormwater discharges and report discharges to the appropriate departments.

- Educate employees about spill prevention and cleanup.
- Well-trained employees can reduce human errors that lead to accidental releases or spills. The employee should have the tools and knowledge to immediately begin cleaning up a spill should one occur. Employees should be familiar with the Spill Prevention Control and Countermeasure Plan.
- Determine and implement appropriate outreach efforts to reduce non-permissible non-stormwater discharges.
- Conduct spill response drills annually (if no events occurred to evaluate your plan) in cooperation with other industries.
- When a responsible party is identified, educate the party on the impacts of his or her actions.

Spill Response and Prevention

- See SC11 Spill Prevention Control and Cleanup.

Other Considerations

- Many facilities do not have accurate, up-to-date schematic drawings.

Requirements

Costs (including capital and operation & maintenance)

- The primary cost is for staff time and depends on how aggressively a program is implemented.
- Cost for containment and disposal is borne by the discharger.
- Illicit connections can be difficult to locate especially if there is groundwater infiltration.
- Indoor floor drains may require re-plumbing if cross-connections to storm drains are detected.

Maintenance (including administrative and staffing)

- Illegal dumping and illicit connection violations requires technical staff to detect and investigate them.

Supplemental Information

Further Detail of the BMP

Illegal Dumping

- Substances illegally dumped on streets and into the storm drain systems and creeks include paints, used oil and other automotive fluids, construction debris, chemicals, fresh concrete, leaves, grass clippings, and pet wastes. All of these wastes cause stormwater and receiving water quality problems as well as clog the storm drain system itself.
- Establish a system for tracking incidents. The system should be designed to identify the following:
  - Illegal dumping hot spots

- Types and quantities (in some cases) of wastes
- Patterns in time of occurrence (time of day/night, month, or year)
- Mode of dumping (abandoned containers, "midnight dumping" from moving vehicles, direct dumping of materials, accidents/spills)
- Responsible parties

One of the keys to success of reducing or eliminating illegal dumping is increasing the number of people at the facility who are aware of the problem and who have the tools to at least identify the incident, if not correct it. Therefore, train field staff to recognize and report the incidents.

What constitutes a "non-stormwater" discharge?

- Non-stormwater discharges to the stormwater collection system may include any water used directly in the manufacturing process (process wastewater), air conditioning condensate and coolant, non-contact cooling water, cooling equipment condensate, outdoor secondary containment water, vehicle and equipment wash water, sink and drinking fountain wastewater, sanitary wastes, or other wastewaters.

Permit Requirements

- Facilities subject to stormwater permit requirements must include a certification that the stormwater collection system has been tested or evaluated for the presence of non-stormwater discharges. The State's General Industrial Stormwater Permit requires that non-stormwater discharges be eliminated prior to implementation of the facility's SWPPP.

Performance Evaluation

- Review annually internal investigation results; assess whether goals were met and what changes or improvements are necessary.
- Obtain feedback from personnel assigned to respond to, or inspect for, illicit connections and illegal dumping incidents.

References and Resources

California's Nonpoint Source Program Plan http://www.swrcb.ca.gov/nps/index.html

Clark County Storm Water Pollution Control Manual
http://www.co.clark.wa.us/pubworks/bmpman.pdf

King County Storm Water Pollution Control Manual http://dnr.metrokc.gov/wlr/dss/spcm.htm

Santa Clara Valley Urban Runoff Pollution Prevention Program http://www.scvurppp.org

The Storm Water Managers Resource Center http://www.stormwatercenter.net/

Spill Prevention, Control & Cleanup SC-11

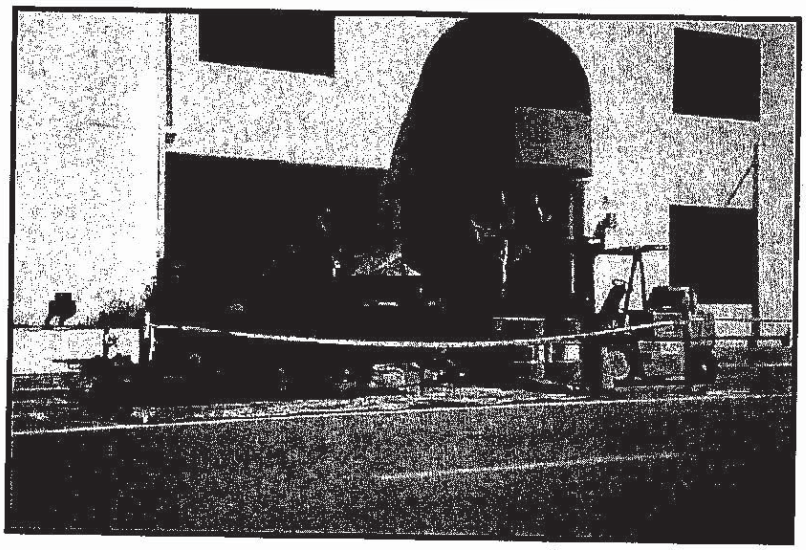


Photo Credit: Geoff Brosseau

Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Description

Many activities that occur at an industrial or commercial site have the potential to cause accidental or illegal spills. Preparation for accidental or illegal spills, with proper training and reporting systems implemented, can minimize the discharge of pollutants to the environment.

Spills and leaks are one of the largest contributors of stormwater pollutants. Spill prevention and control plans are applicable to any site at which hazardous materials are stored or used. An effective plan should have spill prevention and response procedures that identify potential spill areas, specify material handling procedures, describe spill response procedures, and provide spill clean-up equipment. The plan should take steps to identify and characterize potential spills, eliminate and reduce spill potential, respond to spills when they occur in an effort to prevent pollutants from entering the stormwater drainage system, and train personnel to prevent and control future spills.

Targeted Constituents

Sediment	
Nutrients	
Trash	
Metals	☑
Bacteria	
Oil and Grease	☑
Organics	☑

Approach

Pollution Prevention

- Develop procedures to prevent/mitigate spills to storm drain systems. Develop and standardize reporting procedures, containment, storage, and disposal activities, documentation, and follow-up procedures.

- Develop a Spill Prevention Control and Countermeasure (SPCC) Plan. The plan should include:

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- Description of the facility, owner and address, activities and chemicals present
- Facility map
- Notification and evacuation procedures
- Cleanup instructions
- Identification of responsible departments
- Identify key spill response personnel

- Recycle, reclaim, or reuse materials whenever possible. This will reduce the amount of process materials that are brought into the facility.

Suggested Protocols (including equipment needs)

Spill Prevention

- Develop procedures to prevent/mitigate spills to storm drain systems. Develop and standardize reporting procedures, containment, storage, and disposal activities, documentation, and follow-up procedures.

- If consistent illegal dumping is observed at the facility:
  - Post "No Dumping" signs with a phone number for reporting illegal dumping and disposal. Signs should also indicate fines and penalties applicable for illegal dumping.
  - Landscaping and beautification efforts may also discourage illegal dumping.
  - Bright lighting and/or entrance barriers may also be needed to discourage illegal dumping.

- Store and contain liquid materials in such a manner that if the tank is ruptured, the contents will not discharge, flow, or be washed into the storm drainage system, surface waters, or groundwater.

- If the liquid is oil, gas, or other material that separates from and floats on water, install a spill control device (such as a tee section) in the catch basins that collects runoff from the storage tank area.

- Routine maintenance:
  - Place drip pans or absorbent materials beneath all mounted taps, and at all potential drip and spill locations during filling and unloading of tanks. Any collected liquids or soiled absorbent materials must be reused/recycled or properly disposed.
  - Store and maintain appropriate spill cleanup materials in a location known to all near the tank storage area; and ensure that employees are familiar with the site's spill control plan and/or proper spill cleanup procedures.
  - Sweep and clean the storage area monthly if it is paved, *do not hose down the area to a storm drain.*

- Check tanks (and any containment sumps) daily for leaks and spills. Replace tanks that are leaking, corroded, or otherwise deteriorating with tanks in good condition. Collect all spilled liquids and properly dispose of them.

- Label all containers according to their contents (e.g., solvent, gasoline).
- Label hazardous substances regarding the potential hazard (corrosive, radioactive, flammable, explosive, poisonous).
- Prominently display required labels on transported hazardous and toxic materials (per US DOT regulations).
- Identify key spill response personnel.

Spill Control and Cleanup Activities

- Follow the Spill Prevention Control and Countermeasure Plan.
- Clean up leaks and spills immediately.
- Place a stockpile of spill cleanup materials where it will be readily accessible (e.g., near storage and maintenance areas).
- On paved surfaces, clean up spills with as little water as possible. Use a rag for small spills, a damp mop for general cleanup, and absorbent material for larger spills. If the spilled material is hazardous, then the used cleanup materials are also hazardous and must be sent to a certified laundry (rags) or disposed of as hazardous waste. Physical methods for the cleanup of dry chemicals include the use of brooms, shovels, sweepers, or plows.
- Never hose down or bury dry material spills. Sweep up the material and dispose of properly.
- Chemical cleanups of material can be achieved with the use of adsorbents, gels, and foams. Use adsorbent materials on small spills rather than hosing down the spill. Remove the adsorbent materials promptly and dispose of properly.
- For larger spills, a private spill cleanup company or Hazmat team may be necessary.

Reporting

- Report spills that pose an immediate threat to human health or the environment to the Regional Water Quality Control Board.
- Federal regulations require that any oil spill into a water body or onto an adjoining shoreline be reported to the National Response Center (NRC) at 800-424-8802 (24 hour).
- Report spills to local agencies, such as the fire department; they can assist in cleanup.
- Establish a system for tracking incidents. The system should be designed to identify the following:

  - Types and quantities (in some cases) of wastes
  - Patterns in time of occurrence (time of day/night, month, or year)

- Mode of dumping (abandoned containers, "midnight dumping" from moving vehicles, direct dumping of materials, accidents/spills)
- Responsible parties

Training

- Educate employees about spill prevention and cleanup.
- Well-trained employees can reduce human errors that lead to accidental releases or spills:
  - The employee should have the tools and knowledge to immediately begin cleaning up a spill should one occur.
  - Employees should be familiar with the Spill Prevention Control and Countermeasure Plan.
- Employees should be educated about aboveground storage tank requirements. Employees responsible for aboveground storage tanks and liquid transfers should be thoroughly familiar with the Spill Prevention Control and Countermeasure Plan and the plan should be readily available.
- Train employees to recognize and report illegal dumping incidents.

Other Considerations (Limitations and Regulations)

- A Spill Prevention Control and Countermeasure Plan (SPCC) is required for facilities that are subject to the oil pollution regulations specified in Part 112 of Title 40 of the Code of Federal Regulations or if they have a storage capacity of 10,000 gallons or more of petroleum. (Health and Safety Code 6.67)
- State regulations also exist for storage of hazardous materials (Health & Safety Code Chapter 6.95), including the preparation of area and business plans for emergency response to the releases or threatened releases.
- Consider requiring smaller secondary containment areas (less than 200 sq. ft.) to be connected to the sanitary sewer, prohibiting any hard connections to the storm drain.

Requirements

Costs (including capital and operation & maintenance)

- Will vary depending on the size of the facility and the necessary controls.
- Prevention of leaks and spills is inexpensive. Treatment and/or disposal of contaminated soil or water can be quite expensive.

Maintenance (including administrative and staffing)

- This BMP has no major administrative or staffing requirements. However, extra time is needed to properly handle and dispose of spills, which results in increased labor costs.

Supplemental Information

Further Detail of the BMP

Reporting

Record keeping and internal reporting represent good operating practices because they can increase the efficiency of the facility and the effectiveness of BMPs. A good record keeping system helps the facility minimize incident recurrence, correctly respond with appropriate cleanup activities, and comply with legal requirements. A record keeping and reporting system should be set up for documenting spills, leaks, and other discharges, including discharges of hazardous substances in reportable quantities. Incident records describe the quality and quantity of non-stormwater discharges to the storm sewer. These records should contain the following information:

- Date and time of the incident
- Weather conditions
- Duration of the spill/leak/discharge
- Cause of the spill/leak/discharge
- Response procedures implemented
- Persons notified
- Environmental problems associated with the spill/leak/discharge

Separate record keeping systems should be established to document housekeeping and preventive maintenance inspections, and training activities. All housekeeping and preventive maintenance inspections should be documented. Inspection documentation should contain the following information:

- The date and time the inspection was performed
- Name of the inspector
- Items inspected
- Problems noted
- Corrective action required
- Date corrective action was taken

Other means to document and record inspection results are field notes, timed and dated photographs, videotapes, and drawings and maps.

Aboveground Tank Leak and Spill Control

Accidental releases of materials from aboveground liquid storage tanks present the potential for contaminating stormwater with many different pollutants. Materials spilled, leaked, or lost from

tanks may accumulate in soils or on impervious surfaces and be carried away by stormwater runoff.

The most common causes of unintentional releases are:

- Installation problems
- Failure of piping systems (pipes, pumps, flanges, couplings, hoses, and valves)
- External corrosion and structural failure
- Spills and overfills due to operator error
- Leaks during pumping of liquids or gases from truck or rail car to a storage tank or vice versa

Storage of reactive, ignitable, or flammable liquids should comply with the Uniform Fire Code and the National Electric Code. Practices listed below should be employed to enhance the code requirements:

- Tanks should be placed in a designated area.
- Tanks located in areas where firearms are discharged should be encapsulated in concrete or the equivalent.
- Designated areas should be impervious and paved with Portland cement concrete, free of cracks and gaps, in order to contain leaks and spills.
- Liquid materials should be stored in UL approved double walled tanks or surrounded by a curb or dike to provide the volume to contain 10 percent of the volume of all of the containers or 110 percent of the volume of the largest container, whichever is greater. The area inside the curb should slope to a drain.
- For used oil or dangerous waste, a dead-end sump should be installed in the drain.
- All other liquids should be drained to the sanitary sewer if available. The drain must have a positive control such as a lock, valve, or plug to prevent release of contaminated liquids.
- Accumulated stormwater in petroleum storage areas should be passed through an oil/water separator.

Maintenance is critical to preventing leaks and spills. Conduct routine inspections and:

- Check for external corrosion and structural failure.
- Check for spills and overfills due to operator error.
- Check for failure of piping system (pipes, pumps, flanger, coupling, hoses, and valves).
- Check for leaks or spills during pumping of liquids or gases from truck or rail car to a storage facility or vice versa.

- Visually inspect new tank or container installation for loose fittings, poor welding, and improper or poorly fitted gaskets.
- Inspect tank foundations, connections, coatings, and tank walls and piping system. Look for corrosion, leaks, cracks, scratches, and other physical damage that may weaken the tank or container system.
- Frequently relocate accumulated stormwater during the wet season.
- Periodically conduct integrity testing by a qualified professional.

Vehicle Leak and Spill Control

Major spills on roadways and other public areas are generally handled by highly trained Hazmat teams from local fire departments or environmental health departments. The measures listed below pertain to leaks and smaller spills at vehicle maintenance shops.

In addition to implementing the spill prevention, control, and clean up practices above, use the following measures related to specific activities:

Vehicle and Equipment Maintenance

- Perform all vehicle fluid removal or changing inside or under cover to prevent the run-on of stormwater and the runoff of spills.
- Regularly inspect vehicles and equipment for leaks, and repair immediately.
- Check incoming vehicles and equipment (including delivery trucks, and employee and subcontractor vehicles) for leaking oil and fluids. Do not allow leaking vehicles or equipment onsite.
- Always use secondary containment, such as a drain pan or drop cloth, to catch spills or leaks when removing or changing fluids.
- Immediately drain all fluids from wrecked vehicles.
- Store wrecked vehicles or damaged equipment under cover.
- Place drip pans or absorbent materials under heavy equipment when not in use.
- Use adsorbent materials on small spills rather than hosing down the spill.
- Remove the adsorbent materials promptly and dispose of properly.
- Promptly transfer used fluids to the proper waste or recycling drums. Don't leave full drip pans or other open containers lying around.
- Oil filters disposed of in trashcans or dumpsters can leak oil and contaminate stormwater. Place the oil filter in a funnel over a waste oil recycling drum to drain excess oil before disposal. Oil filters can also be recycled. Ask your oil supplier or recycler about recycling oil filters.

- Store cracked batteries in a non-leaking secondary container. Do this with all cracked batteries, even if you think all the acid has drained out. If you drop a battery, treat it as if it is cracked. Put it into the containment area until you are sure it is not leaking.

Vehicle and Equipment Fueling

- Design the fueling area to prevent the run-on of stormwater and the runoff of spills:
  - Cover fueling area if possible.
  - Use a perimeter drain or slope pavement inward with drainage to a sump.
  - Pave fueling area with concrete rather than asphalt.
- If dead-end sump is not used to collect spills, install an oil/water separator.
- Install vapor recovery nozzles to help control drips as well as air pollution.
- Discourage "topping-off' of fuel tanks.
- Use secondary containment when transferring fuel from the tank truck to the fuel tank.
- Use adsorbent materials on small spills and general cleaning rather than hosing down the area. Remove the adsorbent materials promptly.
- Carry out all Federal and State requirements regarding underground storage tanks, or install above ground tanks.
- Do not use mobile fueling of mobile industrial equipment around the facility; rather, transport the equipment to designated fueling areas.
- Keep your Spill Prevention Control and Countermeasure (SPCC) Plan up-to-date.
- Train employees in proper fueling and cleanup procedures.

Industrial Spill Prevention Response

For the purposes of developing a spill prevention and response program to meet the stormwater regulations, facility managers should use information provided in this fact sheet and the spill prevention/response portions of the fact sheets in this handbook, for specific activities. The program should:

- Integrate with existing emergency response/hazardous materials programs (e.g., Fire Department)
- Develop procedures to prevent/mitigate spills to storm drain systems
- Identify responsible departments
- Develop and standardize reporting procedures, containment, storage, and disposal activities, documentation, and follow-up procedures
- Address spills at municipal facilities, as well as public areas

- Provide training concerning spill prevention, response and cleanup to all appropriate personnel

References and Resources

California's Nonpoint Source Program Plan http://www.swrcb.ca.gov/nps/index.html

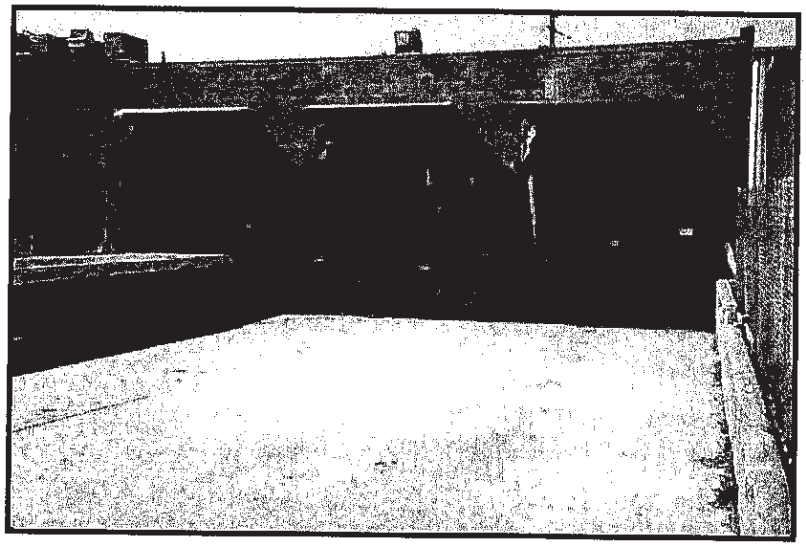
Clark County Storm Water Pollution Control Manual
http://www.co.clark.wa.us/pubworks/bmpman.pdf

King County Storm Water Pollution Control Manual http://dnr.metrokc.gov/wlr/dss/spcm.htm

Santa Clara Valley Urban Runoff Pollution Prevention Program http://www.scvurppp.org

The Stormwater Managers Resource Center http://www.stormwatercenter.net/

Outdoor Loading/Unloading SC-30



Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Description

The loading/unloading of materials usually takes place outside on docks or terminals; therefore, materials spilled, leaked, or lost during loading/unloading may collect in the soil or on other surfaces and have the potential to be carried away by stormwater runoff or when the area is cleaned. Additionally, rainfall may wash pollutants from machinery used to unload or move materials. Implementation of the following protocols will prevent or reduce the discharge of pollutants to stormwater from outdoor loading/unloading of materials.

Targeted Constituents

Sediment	✓
Nutrients	✓
Trash	
Metals	✓
Bacteria	
Oil and Grease	✓
Organics	✓

Approach

Reduce potential for pollutant discharge through source control pollution prevention and BMP implementation. Successful implementation depends on effective training of employees on applicable BMPs and general pollution prevention strategies and objectives.

Pollution Prevention

- Keep accurate maintenance logs to evaluate materials removed and improvements made.
- Park tank trucks or delivery vehicles in designated areas so that spills or leaks can be contained.
- Limit exposure of material to rainfall whenever possible.
- Prevent stormwater run-on.
- Check equipment regularly for leaks.

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Suggested Protocols

Loading and Unloading – General Guidelines

- Develop an operations plan that describes procedures for loading and/or unloading.
- Conduct loading and unloading in dry weather if possible.
- Cover designated loading/unloading areas to reduce exposure of materials to rain.
- Consider placing a seal or door skirt between delivery vehicles and building to prevent exposure to rain.
- Design loading/unloading area to prevent stormwater run-on, which would include grading or berming the area, and position roof downspouts so they direct stormwater away from the loading/unloading areas.
- Have employees load and unload all materials and equipment in covered areas such as building overhangs at loading docks if feasible.
- Load/unload only at designated loading areas.
- Use drip pans underneath hose and pipe connections and other leak-prone spots during liquid transfer operations, and when making and breaking connections. Several drip pans should be stored in a covered location near the liquid transfer area so that they are always available, yet protected from precipitation when not in use. Drip pans can be made specifically for railroad tracks. Drip pans must be cleaned periodically, and drip collected materials must be disposed of properly.
- Pave loading areas with concrete instead of asphalt.
- Avoid placing storm drains in the area.
- Grade and/or berm the loading/unloading area to a drain that is connected to a deadend.

Inspection

- Check loading and unloading equipment regularly for leaks, including valves, pumps, flanges and connections.
- Look for dust or fumes during loading or unloading operations.

Training

- Train employees (e.g., fork lift operators) and contractors on proper spill containment and cleanup.
- Have employees trained in spill containment and cleanup present during loading/unloading.
- Train employees in proper handling techniques during liquid transfers to avoid spills.
- Make sure forklift operators are properly trained on loading and unloading procedures.

Spill Response and Prevention

- Keep your Spill Prevention Control and Countermeasure (SPCC) Plan up-to-date.
- Contain leaks during transfer.
- Store and maintain appropriate spill cleanup materials in a location that is readily accessible and known to all and ensure that employees are familiar with the site's spill control plan and proper spill cleanup procedures.
- Have an emergency spill cleanup plan readily available.
- Use drip pans or comparable devices when transferring oils, solvents, and paints.

Other Considerations (Limitations and Regulations)

- Space and time limitations may preclude all transfers from being performed indoors or under cover.
- It may not be possible to conduct transfers only during dry weather.

Requirements

Costs

Costs should be low except when covering a large loading/unloading area.

Maintenance

- Conduct regular inspections and make repairs as necessary. The frequency of repairs will depend on the age of the facility.
- Check loading and unloading equipment regularly for leaks.
- Conduct regular broom dry-sweeping of area.

Supplemental Information

Further Detail of the BMP

Special Circumstances for Indoor Loading/Unloading of Materials

Loading or unloading of liquids should occur in the manufacturing building so that any spills that are not completely retained can be discharged to the sanitary sewer, treatment plant, or treated in a manner consistent with local sewer authorities and permit requirements.

- For loading and unloading tank trucks to above and below ground storage tanks, the following procedures should be used:
  - The area where the transfer takes place should be paved. If the liquid is reactive with the asphalt, Portland cement should be used to pave the area.
  - The transfer area should be designed to prevent run-on of stormwater from adjacent areas. Sloping the pad and using a curb, like a speed bump, around the uphill side of the transfer area should reduce run-on.

- The transfer area should be designed to prevent runoff of spilled liquids from the area. Sloping the area to a drain should prevent runoff. The drain should be connected to a dead-end sump or to the sanitary sewer. A positive control valve should be installed on the drain.

- For transfer from rail cars to storage tanks that must occur outside, use the following procedures:

  - Drip pans should be placed at locations where spillage may occur, such as hose connections, hose reels, and filler nozzles. Use drip pans when making and breaking connections.

  - Drip pan systems should be installed between the rails to collect spillage from tank cars.

References and Resources

California's Nonpoint Source Program Plan http://www.swrcb.ca.gov/nps/index.html

Clark County Storm Water Pollution Control Manual
http://www.co.clark.wa.us/pubworks/bmpman.pdf

King County Storm Water Pollution Control Manual http://dnr.metrokc.gov/wlr/dss/spcm.htm

Santa Clara Valley Urban Runoff Pollution Prevention Program http://www.scvurppp.org

The Storm Water Managers Resource Center http://www.stormwatercenter.net/

Waste Handling & Disposal SC-34



Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Description

Improper storage and handling of solid wastes can allow toxic compounds, oils and greases, heavy metals, nutrients, suspended solids, and other pollutants to enter stormwater runoff. The discharge of pollutants to stormwater from waste handling and disposal can be prevented and reduced by tracking waste generation, storage, and disposal; reducing waste generation and disposal through source reduction, reuse, and recycling; and preventing run-on and runoff.

Targeted Constituents

Sediment	
Nutrients	
Trash	
Metals	✓
Bacteria	✓
Oil and Grease	✓
Organics	✓

Approach

Pollution Prevention

- Accomplish reduction in the amount of waste generated using the following source controls:
  - Production planning and sequencing
  - Process or equipment modification
  - Raw material substitution or elimination
  - Loss prevention and housekeeping
  - Waste segregation and separation
  - Close loop recycling
- Establish a material tracking system to increase awareness about material usage. This may reduce spills and minimize contamination, thus reducing the amount of waste produced.
- Recycle materials whenever possible.

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Suggested Protocols

General

- Cover storage containers with leak proof lids or some other means. If waste is not in containers, cover all waste piles (plastic tarps are acceptable coverage) and prevent stormwater run-on and runoff with a berm. The waste containers or piles must be covered except when in use.
- Use drip pans or absorbent materials whenever grease containers are emptied by vacuum trucks or other means. Grease cannot be left on the ground. Collected grease must be properly disposed of as garbage.
- Check storage containers weekly for leaks and to ensure that lids are on tightly. Replace any that are leaking, corroded, or otherwise deteriorating.
- Sweep and clean the storage area regularly. If it is paved, do not hose down the area to a storm drain.
- Dispose of rinse and wash water from cleaning waste containers into a sanitary sewer if allowed by the local sewer authority. Do not discharge wash water to the street or storm drain.
- Transfer waste from damaged containers into safe containers.
- Take special care when loading or unloading wastes to minimize losses. Loading systems can be used to minimize spills and fugitive emission losses such as dust or mist. Vacuum transfer systems can minimize waste loss.

Controlling Litter

- Post "No Littering" signs and enforce anti-litter laws.
- Provide a sufficient number of litter receptacles for the facility.
- Clean out and cover litter receptacles frequently to prevent spillage.

Waste Collection

- Keep waste collection areas clean.
- Inspect solid waste containers for structural damage regularly. Repair or replace damaged containers as necessary.
- Secure solid waste containers; containers must be closed tightly when not in use.
- Do not fill waste containers with washout water or any other liquid.
- Ensure that only appropriate solid wastes are added to the solid waste container. Certain wastes such as hazardous wastes, appliances, fluorescent lamps, pesticides, etc., may not be disposed of in solid waste containers (see chemical/ hazardous waste collection section below).

- Do not mix wastes; this can cause chemical reactions, make recycling impossible, and complicate disposal.

Good Housekeeping

- Use all of the product before disposing of the container.
- Keep the waste management area clean at all times by sweeping and cleaning up spills immediately.
- Use dry methods when possible (e.g., sweeping, use of absorbents) when cleaning around restaurant/food handling dumpster areas. If water must be used after sweeping/using absorbents, collect water and discharge through grease interceptor to the sewer.

Chemical/Hazardous Wastes

- Select designated hazardous waste collection areas on-site.
- Store hazardous materials and wastes in covered containers and protect them from vandalism.
- Place hazardous waste containers in secondary containment.
- Make sure that hazardous waste is collected, removed, and disposed of only at authorized disposal areas.
- Stencil or demarcate storm drains on the facility's property with prohibitive message regarding waste disposal.

Run-on/Runoff Prevention

- Prevent stormwater run-on from entering the waste management area by enclosing the area or building a berm around the area.
- Prevent waste materials from directly contacting rain.
- Cover waste piles with temporary covering material such as reinforced tarpaulin, polyethylene, polyurethane, polypropyleneor hypalon.
- Cover the area with a permanent roof if feasible.
- Cover dumpsters to prevent rain from washing waste out of holes or cracks in the bottom of the dumpster.
- Move the activity indoor after ensuring all safety concerns such as fire hazard and ventilation are addressed.

Inspection

- Inspect and replace faulty pumps or hoses regularly to minimize the potential of releases and spills.
- Check waste management areas for leaking containers or spills.

- Repair leaking equipment including valves, lines, seals, or pumps promptly.

Training

- Train staff in pollution prevention measures and proper disposal methods.
- Train employees and contractors in proper spill containment and cleanup. The employee should have the tools and knowledge to immediately begin cleaning up a spill should one occur.
- Train employees and subcontractors in proper hazardous waste management.

Spill Response and Prevention

- Keep your Spill Prevention Control and Countermeasure (SPCC) Plan up-to-date.
- Have an emergency plan, equipment and trained personnel ready at all times to deal immediately with major spills
- Collect all spilled liquids and properly dispose of them.
- Store and maintain appropriate spill cleanup materials in a location known to all near the designated wash area.
- Ensure that vehicles transporting waste have spill prevention equipment that can prevent spills during transport. Spill prevention equipment includes:
  - Vehicles equipped with baffles for liquid waste
  - Trucks with sealed gates and spill guards for solid waste

Other Considerations (Limitations and Regulations)

Hazardous waste cannot be reused or recycled; it must be disposed of by a licensed hazardous waste hauler.

Requirements

Costs

Capital and O&M costs for these programs will vary substantially depending on the size of the facility and the types of waste handled. Costs should be low if there is an inventory program in place.

Maintenance

- None except for maintaining equipment for material tracking program.

Supplemental Information

Further Detail of the BMP

Land Treatment System

Minimize runoff of polluted stormwater from land application by:

- Choosing a site where slopes are under 6%, the soil is permeable, there is a low water table, it is located away from wetlands or marshes, and there is a closed drainage system

- Avoiding application of waste to the site when it is raining or when the ground is saturated with water
- Growing vegetation on land disposal areas to stabilize soils and reduce the volume of surface water runoff from the site
- Maintaining adequate barriers between the land application site and the receiving waters (planted strips are particularly good)
- Using erosion control techniques such as mulching and matting, filter fences, straw bales, diversion terracing, and sediment basins
- Performing routine maintenance to ensure the erosion control or site stabilization measures are working

Examples

The port of Long Beach has a state-of-the-art database for identifying potential pollutant sources, documenting facility management practices, and tracking pollutants.

References and Resources

California's Nonpoint Source Program Plan http://www.swrcb.ca.gov/nps/index.html

Clark County Storm Water Pollution Control Manual
http://www.co.clark.wa.us/pubworks/bmpman.pdf

Solid Waste Container Best Management Practices – Fact Sheet On-Line Resources – Environmental Health and Safety. Harvard University. 2002.

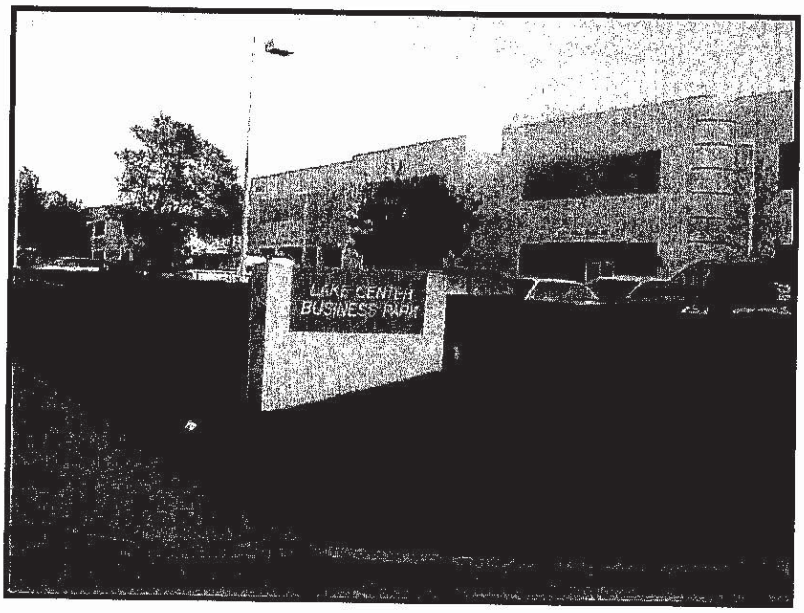
King County Storm Water Pollution Control Manual http://dnr.metrokc.gov/wlr/dss/spcm.htm

Pollution from Surface Cleaning Folder. 1996. Bay Area Stormwater Management Agencies Association (BASMAA). http://www.basmaa.org

Santa Clara Valley Urban Runoff Pollution Prevention Program http://www.scvurppp.org

The Storm Water Managers Resource Center http://www.stormwatercenter.net/

Building & Grounds Maintenance SC-41



Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Targeted Constituents

Sediment	✓
Nutrients	✓
Trash	
Metals	✓
Bacteria	✓
Oil and Grease	
Organics	

Description

Stormwater runoff from building and grounds maintenance activities can be contaminated with toxic hydrocarbons in solvents, fertilizers and pesticides, suspended solids, heavy metals, abnormal pH, and oils and greases. Utilizing the protocols in this fact sheet will prevent or reduce the discharge of pollutants to stormwater from building and grounds maintenance activities by washing and cleaning up with as little water as possible, following good landscape management practices, preventing and cleaning up spills immediately, keeping debris from entering the storm drains, and maintaining the stormwater collection system.

Approach

Reduce potential for pollutant discharge through source control pollution prevention and BMP implementation. Successful implementation depends on effective training of employees on applicable BMPs and general pollution prevention strategies and objectives.

Pollution Prevention

- Switch to non-toxic chemicals for maintenance when possible.
- Choose cleaning agents that can be recycled.
- Encourage proper lawn management and landscaping, including use of native vegetation.

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- Encourage use of Integrated Pest Management techniques for pest control.
- Encourage proper onsite recycling of yard trimmings.
- Recycle residual paints, solvents, lumber, and other material as much as possible.

Suggested Protocols

Pressure Washing of Buildings, Rooftops, and Other Large Objects

- In situations where soaps or detergents are used and the surrounding area is paved, pressure washers must use a water collection device that enables collection of wash water and associated solids. A sump pump, wet vacuum or similarly effective device must be used to collect the runoff and loose materials. The collected runoff and solids must be disposed of properly.
- If soaps or detergents are not used, and the surrounding area is paved, wash runoff does not have to be collected but must be screened. Pressure washers must use filter fabric or some other type of screen on the ground and/or in the catch basin to trap the particles in wash water runoff.
- If you are pressure washing on a grassed area (with or without soap), runoff must be dispersed as sheet flow as much as possible, rather than as a concentrated stream. The wash runoff must remain on the grass and not drain to pavement.

Landscaping Activities

- Dispose of grass clippings, leaves, sticks, or other collected vegetation as garbage, or by composting. Do not dispose of collected vegetation into waterways or storm drainage systems.
- Use mulch or other erosion control measures on exposed soils.

Building Repair, Remodeling, and Construction

- Do not dump any toxic substance or liquid waste on the pavement, the ground, or toward a storm drain.
- Use ground or drop cloths underneath outdoor painting, scraping, and sandblasting work, and properly dispose of collected material daily.
- Use a ground cloth or oversized tub for activities such as paint mixing and tool cleaning.
- Clean paintbrushes and tools covered with water-based paints in sinks connected to sanitary sewers or in portable containers that can be dumped into a sanitary sewer drain. Brushes and tools covered with non-water-based paints, finishes, or other materials must be cleaned in a manner that enables collection of used solvents (e.g., paint thinner, turpentine, etc.) for recycling or proper disposal.
- Use a storm drain cover, filter fabric, or similarly effective runoff control mechanism if dust, grit, wash water, or other pollutants may escape the work area and enter a catch basin. This is particularly necessary on rainy days. The containment device(s) must be in place at the beginning of the work day, and accumulated dirty runoff and solids must be collected and disposed of before removing the containment device(s) at the end of the work day.

- Use up the pesticides. Rinse containers, and use rinse water as product. Dispose of unused pesticide as hazardous waste.
- Implement storage requirements for pesticide products with guidance from the local fire department and County Agricultural Commissioner. Provide secondary containment for pesticides.

Inspection

- Inspect irrigation system periodically to ensure that the right amount of water is being applied and that excessive runoff is not occurring. Minimize excess watering and repair leaks in the irrigation system as soon as they are observed.

Training

- Educate and train employees on pesticide use and in pesticide application techniques to prevent pollution.
- Train employees and contractors in proper techniques for spill containment and cleanup.
- Be sure the frequency of training takes into account the complexity of the operations and the nature of the staff.

Spill Response and Prevention

- Keep your Spill Prevention Control and Countermeasure (SPCC) Plan up-to-date.
- Place a stockpile of spill cleanup materials, such as brooms, dustpans, and vacuum sweepers (if desired) near the storage area where it will be readily accessible.
- Have employees trained in spill containment and cleanup present during the loading/unloading of dangerous wastes, liquid chemicals, or other materials.
- Familiarize employees with the Spill Prevention Control and Countermeasure Plan.
- Clean up spills immediately.

Other Considerations

Alternative pest/weed controls may not be available, suitable, or effective in many cases.

Requirements

Costs

- Cost will vary depending on the type and size of facility.
- Overall costs should be low in comparison to other BMPs.

Maintenance

Sweep paved areas regularly to collect loose particles. Wipe up spills with rags and other absorbent material immediately, do not hose down the area to a storm drain.

- If you need to de-water an excavation site, you may need to filter the water before discharging to a catch basin or off-site. If directed off-site, you should direct the water through hay bales and filter fabric or use other sediment filters or traps.
- Store toxic material under cover during precipitation events and when not in use. A cover would include tarps or other temporary cover material.

Mowing, Trimming, and Planting

- Dispose of leaves, sticks, or other collected vegetation as garbage, by composting or at a permitted landfill. Do not dispose of collected vegetation into waterways or storm drainage systems.
- Use mulch or other erosion control measures when soils are exposed.
- Place temporarily stockpiled material away from watercourses and drain inlets, and berm or cover stockpiles to prevent material releases to the storm drain system.
- Consider an alternative approach when bailing out muddy water: do not put it in the storm drain; pour over landscaped areas.
- Use hand weeding where practical.

Fertilizer and Pesticide Management

- Follow all federal, state, and local laws and regulations governing the use, storage, and disposal of fertilizers and pesticides and training of applicators and pest control advisors.
- Use less toxic pesticides that will do the job when applicable. Avoid use of copper-based pesticides if possible.
- Do not use pesticides if rain is expected.
- Do not mix or prepare pesticides for application near storm drains.
- Use the minimum amount needed for the job.
- Calibrate fertilizer distributors to avoid excessive application.
- Employ techniques to minimize off-target application (e.g., spray drift) of pesticides, including consideration of alternative application techniques.
- Apply pesticides only when wind speeds are low.
- Fertilizers should be worked into the soil rather than dumped or broadcast onto the surface.
- Irrigate slowly to prevent runoff and then only as much as is needed.
- Clean pavement and sidewalk if fertilizer is spilled on these surfaces before applying irrigation water.
- Dispose of empty pesticide containers according to the instructions on the container label.

Supplemental Information

Further Detail of the BMP

Fire Sprinkler Line Flushing

Building fire sprinkler line flushing may be a source of non-stormwater runoff pollution. The water entering the system is usually potable water, though in some areas it may be non-potable reclaimed wastewater. There are subsequent factors that may drastically reduce the quality of the water in such systems. Black iron pipe is usually used since it is cheaper than potable piping, but it is subject to rusting and results in lower quality water. Initially, the black iron pipe has an oil coating to protect it from rusting between manufacture and installation; this will contaminate the water from the first flush but not from subsequent flushes. Nitrates, poly-phosphates and other corrosion inhibitors, as well as fire suppressants and antifreeze may be added to the sprinkler water system. Water generally remains in the sprinkler system a long time (typically a year) and between flushes may accumulate iron, manganese, lead, copper, nickel, and zinc. The water generally becomes anoxic and contains living and dead bacteria and breakdown products from chlorination. This may result in a significant BOD problem and the water often smells. Consequently dispose fire sprinkler line flush water into the sanitary sewer. Do not allow discharge to storm drain or infiltration due to potential high levels of pollutants in fire sprinkler line water.

References and Resources

California's Nonpoint Source Program Plan http://www.swrcb.ca.gov/nps/index.html

Clark County Storm Water Pollution Control Manual
http://www.co.clark.wa.us/pubworks/bmpman.pdf

King County Storm Water Pollution Control Manual http://dnr.metrokc.gov/wlr/dss/spcm.htm

Mobile Cleaners Pilot Program: Final Report. 1997. Bay Area Stormwater Management Agencies Association (BASMAA). http://www.basmaa.org/

Pollution from Surface Cleaning Folder. 1996. Bay Area Stormwater Management Agencies Association (BASMAA). http://www.basmaa.org/

Santa Clara Valley Urban Runoff Pollution Prevention Program http://www.scvurppp.org

The Storm Water Managers Resource Center http://www.stormwatercenter.net/

Parking/Storage Area Maintenance SC-43



Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Targeted Constituents

Sediment	☑
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	☑
Oil and Grease	☑
Organics	☑
Oxygen Demanding	☑

Description

Parking lots and storage areas can contribute a number of substances, such as trash, suspended solids, hydrocarbons, oil and grease, and heavy metals that can enter receiving waters through stormwater runoff or non-stormwater discharges. The following protocols are intended to prevent or reduce the discharge of pollutants from parking/storage areas and include using good housekeeping practices, following appropriate cleaning BMPs, and training employees.

Approach

Pollution Prevention

- Encourage alternative designs and maintenance strategies for impervious parking lots. (See New Development and Redevelopment BMP Handbook).
- Keep accurate maintenance logs to evaluate BMP implementation.

Suggested Protocols

General

- Keep the parking and storage areas clean and orderly. Remove debris in a timely fashion.
- Allow sheet runoff to flow into biofilters (vegetated strip and swale) and/or infiltration devices.
- Utilize sand filters or oleophilic collectors for oily waste in low concentrations.

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- Arrange rooftop drains to prevent drainage directly onto paved surfaces.
- Design lot to include semi-permeable hardscape.

Controlling Litter

- Post "No Littering" signs and enforce anti-litter laws.
- Provide an adequate number of litter receptacles.
- Clean out and cover litter receptacles frequently to prevent spillage.
- Provide trash receptacles in parking lots to discourage litter.
- Routinely sweep, shovel and dispose of litter in the trash.

Surface cleaning

- Use dry cleaning methods (e.g. sweeping or vacuuming) to prevent the discharge of pollutants into the stormwater conveyance system.
- Establish frequency of public parking lot sweeping based on usage and field observations of waste accumulation.
- Sweep all parking lots at least once before the onset of the wet season.
- If water is used follow the procedures below:
  - Block the storm drain or contain runoff.
  - Wash water should be collected and pumped to the sanitary sewer or discharged to a pervious surface, do not allow wash water to enter storm drains.
  - Dispose of parking lot sweeping debris and dirt at a landfill.
- When cleaning heavy oily deposits:
  - Use absorbent materials on oily spots prior to sweeping or washing.
  - Dispose of used absorbents appropriately.

Surface Repair

- Pre-heat, transfer or load hot bituminous material away from storm drain inlets.
- Apply concrete, asphalt, and seal coat during dry weather to prevent contamination form contacting stormwater runoff.
- Cover and seal nearby storm drain inlets (with waterproof material or mesh) and manholes before applying seal coat, slurry seal, etc., where applicable. Leave covers in place until job is complete and until all water from emulsified oil sealants has drained or evaporated. Clean any debris from these covered manholes and drains for proper disposal.

- Use only as much water as necessary for dust control, to avoid runoff.
- Catch drips from paving equipment that is not in use with pans or absorbent material placed under the machines. Dispose of collected material and absorbents properly.

Inspection

- Have designated personnel conduct inspections of the parking facilities and stormwater conveyance systems associated with them on a regular basis.
- Inspect cleaning equipment/sweepers for leaks on a regular basis.

Training

- Provide regular training to field employees and/or contractors regarding cleaning of paved areas and proper operation of equipment.
- Train employees and contractors in proper techniques for spill containment and cleanup.

Spill Response and Prevention

- Refer to SC-11, Spill Prevention, Control & Cleanup.
- Keep your Spill Prevention Control and countermeasure (SPCC) plan up-to-date, nad implement accordingly.
- Have spill cleanup materials readily available and in a known location.
- Cleanup spills immediately and use dry methods if possible.
- Properly dispose of spill cleanup material.

Other Considerations

- Limitations related to sweeping activities at large parking facilities may include high equipment costs, the need for sweeper operator training, and the inability of current sweeper technology to remove oil and grease.

Requirements

Costs

Cleaning/sweeping costs can be quite large, construction and maintenance of stormwater structural controls can be quite expensive as well.

Maintenance

- Sweep parking lot to minimize cleaning with water.
- Clean out oil/water/sand separators regularly, especially after heavy storms.
- Clean parking facilities on a regular basis to prevent accumulated wastes and pollutants from being discharged into conveyance systems during rainy conditions.

SC-43 Parking/Storage Area Maintenance

Supplemental Information

Further Detail of the BMP

Surface Repair

Apply concrete, asphalt, and seal coat during dry weather to prevent contamination form contacting stormwater runoff. Where applicable, cover and seal nearby storm drain inlets (with waterproof material or mesh) and manholes before applying seal coat, slurry seal, etc. Leave covers in place until job is complete and until all water from emulsified oil sealants has drained or evaporated. Clean any debris from these covered manholes and drains for proper disposal. Use only as much water as necessary for dust control, to avoid runoff.

References and Resources

http://www.stormwatercenter.net/

California's Nonpoint Source Program Plan http://www.swrcb.ca.gov/nps/index.html

Model Urban Runoff Program: A How-To Guide for Developing Urban Runoff Programs for Small Municipalities. Prepared by City of Monterey, City of Santa Cruz, California Coastal Commission, Monterey Bay National Marine Sanctuary, Association of Monterey Bay Area Governments, Woodward-Clyde, Central Coast Regional Water Quality control Board. July 1998 (Revised February 2002 by the California Coastal Commission).

Orange County Stormwater Program
http://www.ocwatersheds.com/StormWater/swp_introduction.asp

Oregon Association of Clean Water Agencies. Oregon Municipal Stormwater Toolbox for Maintenance Practices. June 1998.

Pollution from Surface Cleaning Folder. 1996. Bay Area Stormwater Management Agencies Association (BASMAA) http://www.basma.org

San Diego Stormwater Co-permittees Jurisdictional Urban Runoff Management Program (URMP)
http://www.projectcleanwater.org/pdf/Model%20Program%20Municipal%20Facilities.pdf

Housekeeping Practices SC-60

Description

Promote efficient and safe housekeeping practices (storage, use, and cleanup) when handling potentially harmful materials such as fertilizers, pesticides, cleaning solutions, paint products, automotive products, and swimming pool chemicals. Related information is provided in BMP fact sheets SC-11 Spill Prevention, Control & Cleanup and SC-34 Waste Handling & Disposal.

Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Approach

Pollution Prevention

- Purchase only the amount of material that will be needed for foreseeable use. In most cases this will result in cost savings in both purchasing and disposal. See SC-61 Safer Alternative Products for additional information.
- Be aware of new products that may do the same job with less environmental risk and for less or the equivalent cost. Total cost must be used here; this includes purchase price, transportation costs, storage costs, use related costs, clean up costs and disposal costs.

Targeted Constituents

Sediment	☑
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	☑
Oil and Grease	☑
Organics	☑
Oxygen Demanding	☑

Suggested Protocols

General

- Keep work sites clean and orderly. Remove debris in a timely fashion. Sweep the area.
- Dispose of wash water, sweepings, and sediments, properly.
- Recycle or dispose of fluids properly.
- Establish a daily checklist of office, yard and plant areas to confirm cleanliness and adherence to proper storage and security. Specific employees should be assigned specific inspection responsibilities and given the authority to remedy any problems found.
- Post waste disposal charts in appropriate locations detailing for each waste its hazardous nature (poison, corrosive, flammable), prohibitions on its disposal (dumpster, drain, sewer) and the recommended disposal method (recycle, sewer, burn, storage, landfill).
- Summarize the chosen BMPs applicable to your operation and post them in appropriate conspicuous places.

- Require a signed checklist from every user of any hazardous material detailing amount taken, amount used, amount returned and disposal of spent material.
- Do a before audit of your site to establish baseline conditions and regular subsequent audits to note any changes and whether conditions are improving or deteriorating.
- Keep records of water, air and solid waste quantities and quality tests and their disposition.
- Maintain a mass balance of incoming, outgoing and on hand materials so you know when there are unknown losses that need to be tracked down and accounted for.
- Use and reward employee suggestions related to BMPs, hazards, pollution reduction, work place safety, cost reduction, alternative materials and procedures, recycling and disposal.
- Have, and review regularly, a contingency plan for spills, leaks, weather extremes etc. Make sure all employees know about it and what their role is so that it comes into force automatically.

Training

- Train all employees, management, office, yard, manufacturing, field and clerical in BMPs and pollution prevention and make them accountable.
- Train municipal employees who handle potentially harmful materials in good housekeeping practices.
- Train personnel who use pesticides in the proper use of the pesticides. The California Department of Pesticide Regulation license pesticide dealers, certify pesticide applicators and conduct onsite inspections.
- Train employees and contractors in proper techniques for spill containment and cleanup. The employee should have the tools and knowledge to immediately begin cleaning up a spill if one should occur.

Spill Response and Prevention

- Refer to SC-11, Spill Prevention, Control & Cleanup.
- Keep your Spill Prevention Control and Countermeasure (SPCC) plant up-to-date, and implement accordingly.
- Have spill cleanup materials readily available and in a known location.
- Cleanup spills immediately and use dry methods if possible.
- Properly dispose of spill cleanup material.

Other Considerations

- There are no major limitations to this best management practice.
- There are no regulatory requirements to this BMP. Existing regulations already require municipalities to properly store, use, and dispose of hazardous materials

Requirements

Costs

- Minimal cost associated with this BMP. Implementation of good housekeeping practices may result in cost savings as these procedures may reduce the need for more costly BMPs.

Maintenance

- Ongoing maintenance required to keep a clean site. Level of effort is a function of site size and type of activities.

Supplemental Information

Further Detail of the BMP

- The California Integrated Waste Management Board's Recycling Hotline, 1-800-553-2962, provides information on household hazardous waste collection programs and facilities.

Examples

There are a number of communities with effective programs. The most pro-active include Santa Clara County and the City of Palo Alto, the City and County of San Francisco, and the Municipality of Metropolitan Seattle (Metro).

References and Resources

British Columbia Lake Stewardship Society. Best Management Practices to Protect Water Quality from Non-Point Source Pollution. March 2000.
http://www.nalms.org/bclss/bmphome.html#bmp

King County Stormwater Pollution Control Manual - http://dnr.metrokc.gov/wlr/dss/spcm.htm

Model Urban Runoff Program: A How-To Guide for Developing Urban Runoff Programs for Small Municipalities, Prepared by City of Monterey, City of Santa Cruz, California Coastal Commission, Monterey Bay National Marine Sanctuary, Association of Monterey Bay Area Governments, Woodward-Clyde, Central Coast Regional Water Quality Control Board. July, 1998, Revised by California Coastal Commission, February 2002.

Orange County Stormwater Program
http://www.ocwatersheds.com/stormwater/swp_introduction.asp

San Mateo STOPPP - (http://stoppp.tripod.com/bmp.html)

Plaza and Sidewalk Cleaning SC-71



Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Targeted Constituents

Sediment	☑
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	☑
Oil and Grease	☑
Organics	☑
Oxygen Demanding	☑

Description

Pollutants on sidewalks and other pedestrian traffic areas and plazas are typically due to littering and vehicle use. This fact sheet describes good housekeeping practices that can be incorporated into the municipality's existing cleaning and maintenance program.

Approach

Pollution Prevention

- Use dry cleaning methods whenever practical for surface cleaning activities.
- Use the least toxic materials available (e.g. water based paints, gels or sprays for graffiti removal).

Suggested Protocols

Surface Cleaning

- Regularly broom (dry) sweep sidewalk, plaza and parking lot areas to minimize cleaning with water.
- Dry cleanup first (sweep, collect, and dispose of debris and trash) when cleaning sidewalks or plazas, then wash with or without soap.
- Block the storm drain or contain runoff when cleaning with water. Discharge wash water to landscaping or collect water and pump to a tank or discharge to sanitary sewer if allowed. (Permission may be required from local sanitation district.)

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- Block the storm drain or contain runoff when washing parking areas, driveways or drive-throughs. Use absorbents to pick up oil; then dry sweep. Clean with or without soap. Collect water and pump to a tank or discharge to sanitary sewer if allowed. Street Repair and Maintenance.

Graffiti Removal

- Avoid graffiti abatement activities during rain events.
- Implement the procedures under Painting and Paint Removal in SC-70 Roads, Streets, and Highway Operation and Maintenance fact sheet when graffiti is removed by painting over.
- Direct runoff from sand blasting and high pressure washing (with no cleaning agents) into a dirt or landscaped area after treating with an appropriate filtering device.
- Plug nearby storm drain inlets and vacuum/pump wash water to the sanitary sewer if authorized to do so if a graffiti abatement method generates wash water containing a cleaning compound (such as high pressure washing with a cleaning compound). Ensure that a non-hazardous cleaning compound is used or dispose as hazardous waste, as appropriate.

Surface Removal and Repair

- Schedule surface removal activities for dry weather if possible.
- Avoid creating excess dust when breaking asphalt or concrete.
- Take measures to protect nearby storm drain inlets prior to breaking up asphalt or concrete (e.g. place hay bales or sand bags around inlets). Clean afterwards by sweeping up as much material as possible.
- Designate an area for clean up and proper disposal of excess materials.
- Remove and recycle as much of the broken pavement as possible to avoid contact with rainfall and stormwater runoff.
- When making saw cuts in pavement, use as little water as possible. Cover each storm drain inlet completely with filter fabric during the sawing operation and contain the slurry by placing straw bales, sandbags, or gravel dams around the inlets. After the liquid drains or evaporates, shovel or vacuum the slurry residue from the pavement or gutter and remove from site.
- Always dry sweep first to clean up tracked dirt. Use a street sweeper or vacuum truck. Do not dump vacuumed liquid in storm drains. Once dry sweeping is complete, the area may be hosed down if needed. Wash water should be directed to landscaping or collected and pumped to the sanitary sewer if allowed.

Concrete Installation and Repair

- Schedule asphalt and concrete activities for dry weather.

- Take measures to protect any nearby storm drain inlets and adjacent watercourses, prior to breaking up asphalt or concrete (e.g. place san bags around inlets or work areas).
- Limit the amount of fresh concrete or cement mortar mixed, mix only what is needed for the job.
- Store concrete materials under cover, away from drainage areas. Secure bags of cement after they are open. Be sure to keep wind-blown cement powder away from streets, gutters, storm drains, rainfall, and runoff.
- Return leftover materials to the transit mixer. Dispose of small amounts of hardened excess concrete, grout, and mortar in the trash.
- Do not wash sweepings from exposed aggregate concrete into the street or storm drain. Collect and return sweepings to aggregate base stockpile, or dispose in the trash.
- Protect applications of fresh concrete from rainfall and runoff until the material has dried.
- Do not allow excess concrete to be dumped onsite, except in designated areas.
- Wash concrete trucks off site or in designated areas on site designed to preclude discharge of wash water to drainage system.

Controlling Litter

- Post "No Littering" signs and enforce anti-litter laws.
- Provide litter receptacles in busy, high pedestrian traffic areas of the community, at recreational facilities, and at community events.
- Cover litter receptacles and clean out frequently to prevent leaking/spillage or overflow.
- Clean parking lots on a regular basis with a street sweeper.

Training

- Provide regular training to field employees and/or contractors regarding surface cleaning and proper operation of equipment.
- Train employee and contractors in proper techniques for spill containment and cleanup.
- Use a training log or similar method to document training.

Spill Response and Prevention

- Refer to SC-11, Spill Prevention, Control & Cleanup.
- Have spill cleanup materials readily available and in a known location.
- Cleanup spills immediately and use dry methods if possible.
- Properly dispose of spill cleanup material.

Other Considerations

- Limitations related to sweeping activities at large parking facilities may include current sweeper technology to remove oil and grease.
- Surface cleaning activities that require discharges to the local sewering agency will require coordination with the agency.
- Arrangements for disposal of the swept material collected must be made, as well as accurate tracking of the areas swept and the frequency of sweeping.

Requirements

Costs

- The largest expenditures for sweeping and cleaning of sidewalks, plazas, and parking lots are in staffing and equipment. Sweeping of these areas should be incorporated into street sweeping programs to reduce costs.

Maintenance

Not applicable

Supplemental Information

Further Detail of the BMP

Community education, such as informing residents about their options for recycling and waste disposal, as well as the consequences of littering, can instill a sense of citizen responsibility and potentially reduce the amount of maintenance required by the municipality.

Additional BMPs that should be considered for parking lot areas include:

- Allow sheet runoff to flow into biofilters (vegetated strip and swale) and infiltration devices.
- Utilize sand filters or oleophilic collectors for oily waste in low concentrations.
- Arrange rooftop drains to prevent drainage directly onto paved surfaces.
- Design lot to include semi-permeable hardscape.
- Structural BMPs such as storm drain inlet filters can be very effective in reducing the amount of pollutants discharged from parking facilities during periods of rain.

References and Resources

Bay Area Stormwater Management Agencies Association (BASMAA). 1996. Pollution From Surface Cleaning Folder http://www.basmaa.org

Model Urban Runoff Program: A How-To Guide for Developing Urban Runoff Programs for Small Municipalities. Prepared by City of Monterey, City of Santa Cruz, California Coastal Commission, Monterey Bay National Marine Sanctuary, Association of Monterey Bay Area Governments, Woodward-Clyde, Central Coast Regional Water Quality Control Board. July. 1998.

Oregon Association of Clean Water Agencies. Oregon Municipal Stormwater Toolbox for Maintenance Practices. June 1998.

Orange County Stormwater Program
http://www.ocwatersheds.com/stormwater/swp_introduction.asp

Santa Clara Valley Urban Runoff Pollution Prevention Program. 1997 Urban Runoff Management Plan. September 1997, updated October 2000.

Santa Clara Valley Urban Runoff Pollution Prevention Program. Maintenance Best Management Practices for the Construction Industry. Brochures: Landscaping, Gardening, and Pool; Roadwork and Paving; and Fresh Concrete and Mortar Application. June 2001.

San Diego Stormwater Co-permittees Jurisdictional Urban Runoff Management Plan. 2001. Municipal Activities Model Program Guidance. November.

Landscape Maintenance SC-73



Objectives

- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Targeted Constituents

Sediment	☑
Nutrients	☑
Trash	☑
Metals	
Bacteria	
Oil and Grease	
Organics	
Oxygen Demanding	☑

Description

Landscape maintenance activities include vegetation removal; herbicide and insecticide application; fertilizer application; watering; and other gardening and lawn care practices. Vegetation control typically involves a combination of chemical (herbicide) application and mechanical methods. All of these maintenance practices have the potential to contribute pollutants to the storm drain system. The major objectives of this BMP are to minimize the discharge of pesticides, herbicides and fertilizers to the storm drain system and receiving waters; prevent the disposal of landscape waste into the storm drain system by collecting and properly disposing of clippings and cuttings, and educating employees and the public.

Approach

Pollution Prevention

- Implement an integrated pest management (IPM) program. IPM is a sustainable approach to managing pests by combining biological, cultural, physical, and chemical tools.
- Choose low water using flowers, trees, shrubs, and groundcover.
- Consider alternative landscaping techniques such as naturescaping and xeriscaping.
- Conduct appropriate maintenance (i.e. properly timed fertilizing, weeding, pest control, and pruning) to help preserve the landscapes water efficiency.

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- Consider grass cycling (grass cycling is the natural recycling of grass by leaving the clippings on the lawn when mowing. Grass clippings decompose quickly and release valuable nutrients back into the lawn).

Suggested Protocols

Mowing, Trimming, and Weeding

- Whenever possible use mechanical methods of vegetation removal (e.g mowing with tractor-type or push mowers, hand cutting with gas or electric powered weed trimmers) rather than applying herbicides. Use hand weeding where practical.
- Avoid loosening the soil when conducting mechanical or manual weed control, this could lead to erosion. Use mulch or other erosion control measures when soils are exposed.
- Performing mowing at optimal times. Mowing should not be performed if significant rain events are predicted.
- Mulching mowers may be recommended for certain flat areas. Other techniques may be employed to minimize mowing such as selective vegetative planting using low maintenance grasses and shrubs.
- Collect lawn and garden clippings, pruning waste, tree trimmings, and weeds. Chip if necessary, and compost or dispose of at a landfill (see waste management section of this fact sheet).
- Place temporarily stockpiled material away from watercourses, and berm or cover stockpiles to prevent material releases to storm drains.

Planting

- Determine existing native vegetation features (location, species, size, function, importance) and consider the feasibility of protecting them. Consider elements such as their effect on drainage and erosion, hardiness, maintenance requirements, and possible conflicts between preserving vegetation and the resulting maintenance needs.
- Retain and/or plant selected native vegetation whose features are determined to be beneficial, where feasible. Native vegetation usually requires less maintenance (e.g., irrigation, fertilizer) than planting new vegetation.
- Consider using low water use groundcovers when planting or replanting.

Waste Management

- Compost leaves, sticks, or other collected vegetation or dispose of at a permitted landfill. Do not dispose of collected vegetation into waterways or storm drainage systems.
- Place temporarily stockpiled material away from watercourses and storm drain inlets, and berm or cover stockpiles to prevent material releases to the storm drain system.
- Reduce the use of high nitrogen fertilizers that produce excess growth requiring more frequent mowing or trimming.

- Avoid landscape wastes in and around storm drain inlets by either using bagging equipment or by manually picking up the material.

Irrigation

- Where practical, use automatic timers to minimize runoff.
- Use popup sprinkler heads in areas with a lot of activity or where there is a chance the pipes may be broken. Consider the use of mechanisms that reduce water flow to sprinkler heads if broken.
- Ensure that there is no runoff from the landscaped area(s) if re-claimed water is used for irrigation.
- If bailing of muddy water is required (e.g. when repairing a water line leak), do not put it in the storm drain; pour over landscaped areas.
- Irrigate slowly or pulse irrigate to prevent runoff and then only irrigate as much as is needed.
- Apply water at rates that do not exceed the infiltration rate of the soil.

Fertilizer and Pesticide Management

- Utilize a comprehensive management system that incorporates integrated pest management (IPM) techniques. There are many methods and types of IPM, including the following:
  - Mulching can be used to prevent weeds where turf is absent, fencing installed to keep rodents out, and netting used to keep birds and insects away from leaves and fruit.
  - Visible insects can be removed by hand (with gloves or tweezers) and placed in soapy water or vegetable oil. Alternatively, insects can be sprayed off the plant with water or in some cases vacuumed off of larger plants.
  - Store-bought traps, such as species-specific, pheromone-based traps or colored sticky cards, can be used.
  - Slugs can be trapped in small cups filled with beer that are set in the ground so the slugs can get in easily.
  - In cases where microscopic parasites, such as bacteria and fungi, are causing damage to plants, the affected plant material can be removed and disposed of (pruning equipment should be disinfected with bleach to prevent spreading the disease organism).
  - Small mammals and birds can be excluded using fences, netting, tree trunk guards.
  - Beneficial organisms, such as bats, birds, green lacewings, ladybugs, praying mantis, ground beetles, parasitic nematodes, trichogramma wasps, seed head weevils, and spiders that prey on detrimental pest species can be promoted.
- Follow all federal, state, and local laws and regulations governing the use, storage, and disposal of fertilizers and pesticides and training of applicators and pest control advisors.

- Use pesticides only if there is an actual pest problem (not on a regular preventative schedule).
- Do not use pesticides if rain is expected. Apply pesticides only when wind speeds are low (less than 5 mph).
- Do not mix or prepare pesticides for application near storm drains.
- Prepare the minimum amount of pesticide needed for the job and use the lowest rate that will effectively control the pest.
- Employ techniques to minimize off-target application (e.g. spray drift) of pesticides, including consideration of alternative application techniques.
- Fertilizers should be worked into the soil rather than dumped or broadcast onto the surface.
- Calibrate fertilizer and pesticide application equipment to avoid excessive application.
- Periodically test soils for determining proper fertilizer use.
- Sweep pavement and sidewalk if fertilizer is spilled on these surfaces before applying irrigation water.
- Purchase only the amount of pesticide that you can reasonably use in a given time period (month or year depending on the product).
- Triple rinse containers, and use rinse water as product. Dispose of unused pesticide as hazardous waste.
- Dispose of empty pesticide containers according to the instructions on the container label.

Inspection

- Inspect irrigation system periodically to ensure that the right amount of water is being applied and that excessive runoff is not occurring. Minimize excess watering, and repair leaks in the irrigation system as soon as they are observed.
- Inspect pesticide/fertilizer equipment and transportation vehicles daily.

Training

- Educate and train employees on use of pesticides and in pesticide application techniques to prevent pollution. Pesticide application must be under the supervision of a California qualified pesticide applicator.
- Train/encourage municipal maintenance crews to use IPM techniques for managing public green areas.
- Annually train employees within departments responsible for pesticide application on the appropriate portions of the agency's IPM Policy, SOPs, and BMPs, and the latest IPM techniques.

- Employees who are not authorized and trained to apply pesticides should be periodically (at least annually) informed that they cannot use over-the-counter pesticides in or around the workplace.
- Use a training log or similar method to document training.

Spill Response and Prevention

- Refer to SC-11, Spill Prevention, Control & Cleanup
- Have spill cleanup materials readily available and in a know in location
- Cleanup spills immediately and use dry methods if possible.
- Properly dispose of spill cleanup material.

Other Considerations

- The Federal Pesticide, Fungicide, and Rodenticide Act and California Title 3, Division 6, Pesticides and Pest Control Operations place strict controls over pesticide application and handling and specify training, annual refresher, and testing requirements. The regulations generally cover: a list of approved pesticides and selected uses, updated regularly; general application information; equipment use and maintenance procedures; and record keeping. The California Department of Pesticide Regulations and the County Agricultural Commission coordinate and maintain the licensing and certification programs. All public agency employees who apply pesticides and herbicides in "agricultural use" areas such as parks, golf courses, rights-of-way and recreation areas should be properly certified in accordance with state regulations. Contracts for landscape maintenance should include similar requirements.
- All employees who handle pesticides should be familiar with the most recent material safety data sheet (MSDS) files.
- Municipalities do not have the authority to regulate the use of pesticides by school districts, however the California Healthy Schools Act of 2000 (AB 2260) has imposed requirements on California school districts regarding pesticide use in schools. Posting of notification prior to the application of pesticides is now required, and IPM is stated as the preferred approach to pest management in schools.

Requirements

Costs

Additional training of municipal employees will be required to address IPM techniques and BMPs. IPM methods will likely increase labor cost for pest control which may be offset by lower chemical costs.

Maintenance

Not applicable

Supplemental Information

Further Detail of the BMP

Waste Management

Composting is one of the better disposal alternatives if locally available. Most municipalities either have or are planning yard waste composting facilities as a means of reducing the amount of waste going to the landfill. Lawn clippings from municipal maintenance programs as well as private sources would probably be compatible with most composting facilities

Contractors and Other Pesticide Users

Municipal agencies should develop and implement a process to ensure that any contractor employed to conduct pest control and pesticide application on municipal property engages in pest control methods consistent with the IPM Policy adopted by the agency. Specifically, municipalities should require contractors to follow the agency's IPM policy, SOPs, and BMPs; provide evidence to the agency of having received training on current IPM techniques when feasible; provide documentation of pesticide use on agency property to the agency in a timely manner.

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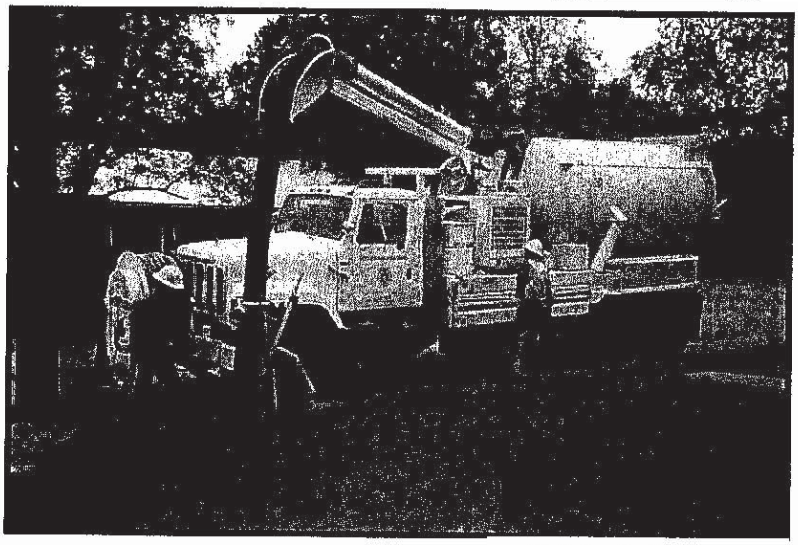


Photo Credit: Geoff Brosseau

Objectives

- Contain
- Educate
- Reduce/Minimize

Description

As a consequence of its function, the stormwater conveyance system collects and transports urban runoff that may contain certain pollutants. Maintaining catch basins, stormwater inlets, and other stormwater conveyance structures on a regular basis will remove pollutants, prevent clogging of the downstream conveyance system, restore catch basins' sediment trapping capacity, and ensure the system functions properly hydraulically to avoid flooding.

Targeted Constituents

Sediment	☑
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	☑
Oil and Grease	☑
Organics	☑
Oxygen Demanding	☑

Approach

Suggested Protocols

Catch Basins/Inlet Structures

- Municipal staff should regularly inspect facilities to ensure the following:
  - Immediate repair of any deterioration threatening structural integrity.
  - Cleaning before the sump is 40% full. Catch basins should be cleaned as frequently as needed to meet this standard.
  - Stenciling of catch basins and inlets (see SC-75 Waste Handling and Disposal).
- Clean catch basins, storm drain inlets, and other conveyance structures in high pollutant load areas just before the wet season to remove sediments and debris accumulated during the summer.

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- Conduct inspections more frequently during the wet season for problem areas where sediment or trash accumulates more often. Clean and repair as needed.
- Keep accurate logs of the number of catch basins cleaned.
- Record the amount of waste collected.
- Store wastes collected from cleaning activities of the drainage system in appropriate containers or temporary storage sites in a manner that prevents discharge to the storm drain.
- Dewater the wastes with outflow into the sanitary sewer if permitted. Water should be treated with an appropriate filtering device prior to discharge to the sanitary sewer. If discharge to the sanitary sewer is not allowed, water should be pumped or vacuumed to a tank and properly disposed of. Do not dewater near a storm drain or stream.
- Except for small communities with relatively few catch basins that may be cleaned manually, most municipalities will require mechanical cleaners such as eductors, vacuums, or bucket loaders.

Storm Drain Conveyance System

- Locate reaches of storm drain with deposit problems and develop a flushing schedule that keeps the pipe clear of excessive buildup.
- Collect flushed effluent and pump to the sanitary sewer for treatment.

Pump Stations

- Clean all storm drain pump stations prior to the wet season to remove silt and trash.
- Do not allow discharge from cleaning a storm drain pump station or other facility to reach the storm drain system.
- Conduct quarterly routine maintenance at each pump station.
- Inspect, clean, and repair as necessary all outlet structures prior to the wet season.
- Sample collected sediments to determine if landfill disposal is possible, or illegal discharges in the watershed are occurring.

Open Channel

- Consider modification of storm channel characteristics to improve channel hydraulics, to increase pollutant removals, and to enhance channel/creek aesthetic and habitat value.
- Conduct channel modification/improvement in accordance with existing laws. Any person, government agency, or public utility proposing an activity that will change the natural (emphasis added) state of any river, stream, or lake in California, must enter into a steam or Lake Alteration Agreement with the Department of Fish and Game. The developer-applicant should also contact local governments (city, county, special districts), other state agencies

(SWRCB, RWQCB, Department of Forestry, Department of Water Resources), and Federal Corps of Engineers and USFWS

Illicit Connections and Discharges

- During routine maintenance of conveyance system and drainage structures field staff should look for evidence of illegal discharges or illicit connections:
  - Is there evidence of spills such as paints, discoloring, etc.
  - Are there any odors associated with the drainage system
  - Record locations of apparent illegal discharges/illicit connections
  - Track flows back to potential dischargers and conduct aboveground inspections. This can be done through visual inspection of up gradient manholes or alternate techniques including zinc chloride smoke testing, fluorometric dye testing, physical inspection testing, or television camera inspection.
  - Once the origin of flow is established, require illicit discharger to eliminate the discharge.
- Stencil storm drains, where applicable, to prevent illegal disposal of pollutants. Storm drain inlets should have messages such as "Dump No Waste Drains to Stream" stenciled next to them to warn against ignorant or intentional dumping of pollutants into the storm drainage system.
- Refer to fact sheet SC-10 Non-Stormwater Discharges.

Illegal Dumping

- Regularly inspect and clean up hot spots and other storm drainage areas where illegal dumping and disposal occurs.
- Establish a system for tracking incidents. The system should be designed to identify the following:
  - Illegal dumping hot spots
  - Types and quantities (in some cases) of wastes
  - Patterns in time of occurrence (time of day/night, month, or year)
  - Mode of dumping (abandoned containers, "midnight dumping" from moving vehicles, direct dumping of materials, accidents/spills)
  - Responsible parties
- Post "No Dumping" signs in problem areas with a phone number for reporting dumping and disposal. Signs should also indicate fines and penalties for illegal dumping.
- Refer to fact sheet SC-10 Non-Stormwater Discharges.

- The State Department of Fish and Game has a hotline for reporting violations called Cal TIP (1-800-952-5400). The phone number may be used to report any violation of a Fish and Game code (illegal dumping, poaching, etc.).
- The California Department of Toxic Substances Control's Waste Alert Hotline, 1-800-69TOXIC, can be used to report hazardous waste violations.

Training

- Train crews in proper maintenance activities, including record keeping and disposal.
- Only properly trained individuals are allowed to handle hazardous materials/wastes.
- Train municipal employees from all departments (public works, utilities, street cleaning, parks and recreation, industrial waste inspection, hazardous waste inspection, sewer maintenance) to recognize and report illegal dumping.
- Train municipal employees and educate businesses, contractors, and the general public in proper and consistent methods for disposal.
- Train municipal staff regarding non-stormwater discharges (See SC-10 Non-Stormwater Discharges).

Spill Response and Prevention

- Refer to SC-11, Prevention, Control & Cleanup
- Have spill cleanup materials readily available and in a known location.
- Cleanup spills immediately and use dry methods if possible.
- Properly dispose of spill cleanup material.

Other Considerations

- Cleanup activities may create a slight disturbance for local aquatic species. Access to items and material on private property may be limited. Trade-offs may exist between channel hydraulics and water quality/riparian habitat. If storm channels or basins are recognized as wetlands, many activities, including maintenance, may be subject to regulation and permitting.
- Storm drain flushing is most effective in small diameter pipes (36-inch diameter pipe or less, depending on water supply and sediment collection capacity). Other considerations associated with storm drain flushing may include the availability of a water source, finding a downstream area to collect sediments, liquid/sediment disposal, and disposal of flushed effluent to sanitary sewer may be prohibited in some areas.
- Regulations may include adoption of substantial penalties for illegal dumping and disposal.
- Municipal codes should include sections prohibiting the discharge of soil, debris, refuse, hazardous wastes, and other pollutants into the storm drain system.
- Private property access rights may be needed to track illegal discharges up gradient.

- Requirements of municipal ordinance authority for suspected source verification testing for illicit connections necessary for guaranteed rights of entry.

Requirements

Costs

- An aggressive catch basin cleaning program could require a significant capital and O&M budget. A careful study of cleaning effectiveness should be undertaken before increased cleaning is implemented. Catch basin cleaning costs are less expensive if vacuum street sweepers are available; cleaning catch basins manually can cost approximately twice as much as cleaning the basins with a vacuum attached to a sweeper.

- Methods used for illicit connection detection (smoke testing, dye testing, visual inspection, and flow monitoring) can be costly and time-consuming. Site-specific factors, such as the level of impervious area, the density and ages of buildings, and type of land use will determine the level of investigation necessary. Encouraging reporting of illicit discharges by employees can offset costs by saving expense on inspectors and directing resources more efficiently. Some programs have used funds available from "environmental fees" or special assessment districts to fund their illicit connection elimination programs.

Maintenance

- Two-person teams may be required to clean catch basins with vactor trucks.

- Identifying illicit discharges requires teams of at least two people (volunteers can be used), plus administrative personnel, depending on the complexity of the storm sewer system.

- Arrangements must be made for proper disposal of collected wastes.

- Requires technical staff to detect and investigate illegal dumping violations, and to coordinate public education.

Supplemental Information

Further Detail of the BMP

Storm Drain flushing

Sanitary sewer flushing is a common maintenance activity used to improve pipe hydraulics and to remove pollutants in sanitary sewer systems. The same principles that make sanitary sewer flushing effective can be used to flush storm drains. Flushing may be designed to hydraulically convey accumulated material to strategic locations, such as to an open channel, to another point where flushing will be initiated, or over to the sanitary sewer and on to the treatment facilities, thus preventing re-suspension and overflow of a portion of the solids during storm events. Flushing prevents "plug flow" discharges of concentrated pollutant loadings and sediments. The deposits can hinder the designed conveyance capacity of the storm drain system and potentially cause backwater conditions in severe cases of clogging.

Storm drain flushing usually takes place along segments of pipe with grades that are too flat to maintain adequate velocity to keep particles in suspension. An upstream manhole is selected to place an inflatable device that temporarily plugs the pipe. Further upstream, water is pumped into the line to create a flushing wave. When the upstream reach of pipe is sufficiently full to

cause a flushing wave, the inflated device is rapidly deflated with the assistance of a vacuum pump, releasing the backed up water and resulting in the cleaning of the storm drain segment.

To further reduce the impacts of stormwater pollution, a second inflatable device, placed well downstream, may be used to re-collect the water after the force of the flushing wave has dissipated. A pump may then be used to transfer the water and accumulated material to the sanitary sewer for treatment. In some cases, an interceptor structure may be more practical or required to re-collect the flushed waters.

It has been found that cleansing efficiency of periodic flush waves is dependent upon flush volume, flush discharge rate, sewer slope, sewer length, sewer flow rate, sewer diameter, and population density. As a rule of thumb, the length of line to be flushed should not exceed 700 feet. At this maximum recommended length, the percent removal efficiency ranges between 65-75 percent for organics and 55-65 percent for dry weather grit/inorganic material. The percent removal efficiency drops rapidly beyond that. Water is commonly supplied by a water truck, but fire hydrants can also supply water. To make the best use of water, it is recommended that reclaimed water be used or that fire hydrant line flushing coincide with storm drain flushing.

Flow Management

Flow management has been one of the principal motivations for designing urban stream corridors in the past. Such needs may or may not be compatible with the stormwater quality goals in the stream corridor.

Downstream flood peaks can be suppressed by reducing through flow velocity. This can be accomplished by reducing gradient with grade control structures or increasing roughness with boulders, dense vegetation, or complex banks forms. Reducing velocity correspondingly increases flood height, so all such measures have a natural association with floodplain open space. Flood elevations laterally adjacent to the stream can be lowered by increasing through flow velocity.

However, increasing velocity increases flooding downstream and inherently conflicts with channel stability and human safety. Where topography permits, another way to lower flood elevation is to lower the level of the floodway with drop structures into a large but subtly excavated bowl where flood flows we allowed to spread out.

Stream Corridor Planning

Urban streams receive and convey stormwater flows from developed or developing watersheds. Planning of stream corridors thus interacts with urban stormwater management programs. If local programs are intended to control or protect downstream environments by managing flows delivered to the channels, then it is logical that such programs should be supplemented by management of the materials, forms, and uses of the downstream riparian corridor. Any proposal for steam alteration or management should be investigated for its potential flow and stability effects on upstream, downstream, and laterally adjacent areas. The timing and rate of flow from various tributaries can combine in complex ways to alter flood hazards. Each section of channel is unique, influenced by its own distribution of roughness elements, management activities, and stream responses.

Flexibility to adapt to stream features and behaviors as they evolve must be included in stream reclamation planning. The amenity and ecology of streams may be enhanced through the landscape design options of 1) corridor reservation, 2) bank treatment, 3) geomorphic restoration, and 4) grade control.

Corridor reservation - Reserving stream corridors and valleys to accommodate natural stream meandering, aggradation, degradation, and over bank flows allows streams to find their own form and generate less ongoing erosion. In California, open stream corridors in recent urban developments have produced recreational open space, irrigation of streamside plantings, and the aesthetic amenity of flowing water.

Bank treatment - The use of armoring, vegetative cover, and flow deflection may be used to influence a channel's form, stability, and biotic habitat. To prevent bank erosion, armoring can be done with rigid construction materials, such as concrete, masonry, wood planks and logs, riprap, and gabions. Concrete linings have been criticized because of their lack of provision of biotic habitat. In contrast, riprap and gabions make relatively porous and flexible linings. Boulders, placed in the bed reduce velocity and erosive power.

Riparian vegetation can stabilize the banks of streams that are at or near a condition of equilibrium. Binding networks of roots increase bank shear strength. During flood flows, resilient vegetation is forced into erosion-inhibiting mats. The roughness of vegetation leads to lower velocity, further reducing erosive effects. Structural flow deflection can protect banks from erosion or alter fish habitat. By concentrating flow, a deflector causes a pool to be scoured in the bed.

Geomorphic restoration – Restoration refers to alteration of disturbed streams so their form and behavior emulate those of undisturbed streams. Natural meanders are retained, with grading to gentle slopes on the inside of curves to allow point bars and riffle-pool sequences to develop. Trees are retained to provide scenic quality, biotic productivity, and roots for bank stabilization, supplemented by plantings where necessary.

A restorative approach can be successful where the stream is already approaching equilibrium. However, if upstream urbanization continues new flow regimes will be generated that could disrupt the equilibrium of the treated system.

Grade Control - A grade control structure is a level shelf of a permanent material, such as stone, masonry, or concrete, over which stream water flows. A grade control structure is called a sill, weir, or drop structure, depending on the relation of its invert elevation to upstream and downstream channels.

A sill is installed at the preexisting channel bed elevation to prevent upstream migration of nick points. It establishes a firm base level below which the upstream channel can not erode.

A weir or check dam is installed with invert above the preexisting bed elevation. A weir raises the local base level of the stream and causes aggradation upstream. The gradient, velocity, and erosive potential of the stream channel are reduced. A drop structure lowers the downstream invert below its preexisting elevation, reducing downstream gradient and velocity. Weirs and drop structure control erosion by dissipating energy and reducing slope velocity.

When carefully applied, grade control structures can be highly versatile in establishing human and environmental benefits in stabilized channels. To be successful, application of grade control structures should be guided by analysis of the stream system both upstream and downstream from the area to he reclaimed.

Examples

The California Department of Water Resources began the Urban Stream Restoration Program in 1985. The program provides grant funds to municipalities and community groups to implement stream restoration projects. The projects reduce damages from streambank aid watershed instability arid floods while restoring streams' aesthetic, recreational, and fish and wildlife values.

In Buena Vista Park, upper floodway slopes are gentle and grassed to achieve continuity of usable park land across the channel of small boulders at the base of the slopes.

The San Diego River is a large, vegetative lined channel, which was planted in a variety of species to support riparian wildlife while stabilizing the steep banks of the floodway.

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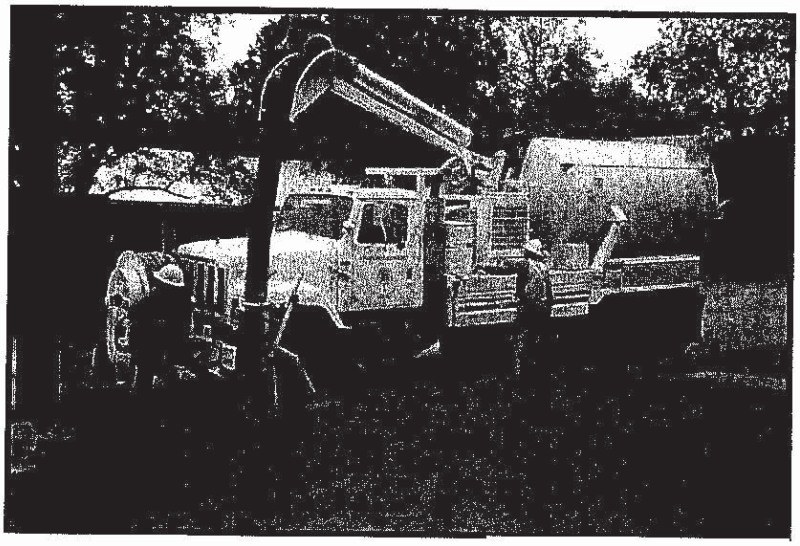


Photo Credit: Geoff Brosseau

Objectives

- Contain
- Educate
- Reduce/Minimize

Description

As a consequence of its function, the stormwater conveyance system collects and transports urban runoff that may contain certain pollutants. Maintaining catch basins, stormwater inlets, and other stormwater conveyance structures on a regular basis will remove pollutants, prevent clogging of the downstream conveyance system, restore catch basins' sediment trapping capacity, and ensure the system functions properly hydraulically to avoid flooding.

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Nutrients	☑
Trash	☑
Metals	☑
Bacteria	☑
Oil and Grease	☑
Organics	☑
Oxygen Demanding	☑

Approach

Suggested Protocols

Catch Basins/Inlet Structures

- Municipal staff should regularly inspect facilities to ensure the following:
  - Immediate repair of any deterioration threatening structural integrity.
  - Cleaning before the sump is 40% full. Catch basins should be cleaned as frequently as needed to meet this standard.
  - Stenciling of catch basins and inlets (see SC-75 Waste Handling and Disposal).
- Clean catch basins, storm drain inlets, and other conveyance structures in high pollutant load areas just before the wet season to remove sediments and debris accumulated during the summer.

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- Conduct inspections more frequently during the wet season for problem areas where sediment or trash accumulates more often. Clean and repair as needed.
- Keep accurate logs of the number of catch basins cleaned.
- Record the amount of waste collected.
- Store wastes collected from cleaning activities of the drainage system in appropriate containers or temporary storage sites in a manner that prevents discharge to the storm drain.
- Dewater the wastes with outflow into the sanitary sewer if permitted. Water should be treated with an appropriate filtering device prior to discharge to the sanitary sewer. If discharge to the sanitary sewer is not allowed, water should be pumped or vacuumed to a tank and properly disposed of. Do not dewater near a storm drain or stream.
- Except for small communities with relatively few catch basins that may be cleaned manually, most municipalities will require mechanical cleaners such as eductors, vacuums, or bucket loaders.

Storm Drain Conveyance System

- Locate reaches of storm drain with deposit problems and develop a flushing schedule that keeps the pipe clear of excessive buildup.
- Collect flushed effluent and pump to the sanitary sewer for treatment.

Pump Stations

- Clean all storm drain pump stations prior to the wet season to remove silt and trash.
- Do not allow discharge from cleaning a storm drain pump station or other facility to reach the storm drain system.
- Conduct quarterly routine maintenance at each pump station.
- Inspect, clean, and repair as necessary all outlet structures prior to the wet season.
- Sample collected sediments to determine if landfill disposal is possible, or illegal discharges in the watershed are occurring.

Open Channel

- Consider modification of storm channel characteristics to improve channel hydraulics, to increase pollutant removals, and to enhance channel/creek aesthetic and habitat value.
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(SWRCB, RWQCB, Department of Forestry, Department of Water Resources), and Federal Corps of Engineers and USFWS

Illicit Connections and Discharges

- During routine maintenance of conveyance system and drainage structures field staff should look for evidence of illegal discharges or illicit connections:
  - Is there evidence of spills such as paints, discoloring, etc.
  - Are there any odors associated with the drainage system
  - Record locations of apparent illegal discharges/illicit connections
  - Track flows back to potential dischargers and conduct aboveground inspections. This can be done through visual inspection of up gradient manholes or alternate techniques including zinc chloride smoke testing, fluorometric dye testing, physical inspection testing, or television camera inspection.
  - Once the origin of flow is established, require illicit discharger to eliminate the discharge.
- Stencil storm drains, where applicable, to prevent illegal disposal of pollutants. Storm drain inlets should have messages such as "Dump No Waste Drains to Stream" stenciled next to them to warn against ignorant or intentional dumping of pollutants into the storm drainage system.
- Refer to fact sheet SC-10 Non-Stormwater Discharges.

Illegal Dumping

- Regularly inspect and clean up hot spots and other storm drainage areas where illegal dumping and disposal occurs.
- Establish a system for tracking incidents. The system should be designed to identify the following:
  - Illegal dumping hot spots
  - Types and quantities (in some cases) of wastes
  - Patterns in time of occurrence (time of day/night, month, or year)
  - Mode of dumping (abandoned containers, "midnight dumping" from moving vehicles, direct dumping of materials, accidents/spills)
  - Responsible parties
- Post "No Dumping" signs in problem areas with a phone number for reporting dumping and disposal. Signs should also indicate fines and penalties for illegal dumping.
- Refer to fact sheet SC-10 Non-Stormwater Discharges.

- The State Department of Fish and Game has a hotline for reporting violations called Cal TIP (1-800-952-5400). The phone number may be used to report any violation of a Fish and Game code (illegal dumping, poaching, etc.).
- The California Department of Toxic Substances Control's Waste Alert Hotline, 1-800-69TOXIC, can be used to report hazardous waste violations.

Training

- Train crews in proper maintenance activities, including record keeping and disposal.
- Only properly trained individuals are allowed to handle hazardous materials/wastes.
- Train municipal employees from all departments (public works, utilities, street cleaning, parks and recreation, industrial waste inspection, hazardous waste inspection, sewer maintenance) to recognize and report illegal dumping.
- Train municipal employees and educate businesses, contractors, and the general public in proper and consistent methods for disposal.
- Train municipal staff regarding non-stormwater discharges (See SC-10 Non-Stormwater Discharges).

Spill Response and Prevention

- Refer to SC-11, Prevention, Control & Cleanup
- Have spill cleanup materials readily available and in a known location.
- Cleanup spills immediately and use dry methods if possible.
- Properly dispose of spill cleanup material.

Other Considerations

- Cleanup activities may create a slight disturbance for local aquatic species. Access to items and material on private property may be limited. Trade-offs may exist between channel hydraulics and water quality/riparian habitat. If storm channels or basins are recognized as wetlands, many activities, including maintenance, may be subject to regulation and permitting.
- Storm drain flushing is most effective in small diameter pipes (36-inch diameter pipe or less, depending on water supply and sediment collection capacity). Other considerations associated with storm drain flushing may include the availability of a water source, finding a downstream area to collect sediments, liquid/sediment disposal, and disposal of flushed effluent to sanitary sewer may be prohibited in some areas.
- Regulations may include adoption of substantial penalties for illegal dumping and disposal.
- Municipal codes should include sections prohibiting the discharge of soil, debris, refuse, hazardous wastes, and other pollutants into the storm drain system.
- Private property access rights may be needed to track illegal discharges up gradient.

- Requirements of municipal ordinance authority for suspected source verification testing for illicit connections necessary for guaranteed rights of entry.

Requirements

Costs

- An aggressive catch basin cleaning program could require a significant capital and O&M budget. A careful study of cleaning effectiveness should be undertaken before increased cleaning is implemented. Catch basin cleaning costs are less expensive if vacuum street sweepers are available; cleaning catch basins manually can cost approximately twice as much as cleaning the basins with a vacuum attached to a sweeper.

- Methods used for illicit connection detection (smoke testing, dye testing, visual inspection, and flow monitoring) can be costly and time-consuming. Site-specific factors, such as the level of impervious area, the density and ages of buildings, and type of land use will determine the level of investigation necessary. Encouraging reporting of illicit discharges by employees can offset costs by saving expense on inspectors and directing resources more efficiently. Some programs have used funds available from "environmental fees" or special assessment districts to fund their illicit connection elimination programs.

Maintenance

- Two-person teams may be required to clean catch basins with vactor trucks.

- Identifying illicit discharges requires teams of at least two people (volunteers can be used), plus administrative personnel, depending on the complexity of the storm sewer system.

- Arrangements must be made for proper disposal of collected wastes.

- Requires technical staff to detect and investigate illegal dumping violations, and to coordinate public education.

Supplemental Information

Further Detail of the BMP

Storm Drain flushing

Sanitary sewer flushing is a common maintenance activity used to improve pipe hydraulics and to remove pollutants in sanitary sewer systems. The same principles that make sanitary sewer flushing effective can be used to flush storm drains. Flushing may be designed to hydraulically convey accumulated material to strategic locations, such as to an open channel, to another point where flushing will be initiated, or over to the sanitary sewer and on to the treatment facilities, thus preventing re-suspension and overflow of a portion of the solids during storm events. Flushing prevents "plug flow" discharges of concentrated pollutant loadings and sediments. The deposits can hinder the designed conveyance capacity of the storm drain system and potentially cause backwater conditions in severe cases of clogging.

Storm drain flushing usually takes place along segments of pipe with grades that are too flat to maintain adequate velocity to keep particles in suspension. An upstream manhole is selected to place an inflatable device that temporarily plugs the pipe. Further upstream, water is pumped into the line to create a flushing wave. When the upstream reach of pipe is sufficiently full to

cause a flushing wave, the inflated device is rapidly deflated with the assistance of a vacuum pump, releasing the backed up water and resulting in the cleaning of the storm drain segment.

To further reduce the impacts of stormwater pollution, a second inflatable device, placed well downstream, may be used to re-collect the water after the force of the flushing wave has dissipated. A pump may then be used to transfer the water and accumulated material to the sanitary sewer for treatment. In some cases, an interceptor structure may be more practical or required to re-collect the flushed waters.

It has been found that cleansing efficiency of periodic flush waves is dependent upon flush volume, flush discharge rate, sewer slope, sewer length, sewer flow rate, sewer diameter, and population density. As a rule of thumb, the length of line to be flushed should not exceed 700 feet. At this maximum recommended length, the percent removal efficiency ranges between 65-75 percent for organics and 55-65 percent for dry weather grit/inorganic material. The percent removal efficiency drops rapidly beyond that. Water is commonly supplied by a water truck, but fire hydrants can also supply water. To make the best use of water, it is recommended that reclaimed water be used or that fire hydrant line flushing coincide with storm drain flushing.

Flow Management

Flow management has been one of the principal motivations for designing urban stream corridors in the past. Such needs may or may not be compatible with the stormwater quality goals in the stream corridor.

Downstream flood peaks can be suppressed by reducing through flow velocity. This can be accomplished by reducing gradient with grade control structures or increasing roughness with boulders, dense vegetation, or complex banks forms. Reducing velocity correspondingly increases flood height, so all such measures have a natural association with floodplain open space. Flood elevations laterally adjacent to the stream can be lowered by increasing through flow velocity.

However, increasing velocity increases flooding downstream and inherently conflicts with channel stability and human safety. Where topography permits, another way to lower flood elevation is to lower the level of the floodway with drop structures into a large but subtly excavated bowl where flood flows we allowed to spread out.

Stream Corridor Planning

Urban streams receive and convey stormwater flows from developed or developing watersheds. Planning of stream corridors thus interacts with urban stormwater management programs. If local programs are intended to control or protect downstream environments by managing flows delivered to the channels, then it is logical that such programs should be supplemented by management of the materials, forms, and uses of the downstream riparian corridor. Any proposal for steam alteration or management should be investigated for its potential flow and stability effects on upstream, downstream, and laterally adjacent areas. The timing and rate of flow from various tributaries can combine in complex ways to alter flood hazards. Each section of channel is unique, influenced by its own distribution of roughness elements, management activities, and stream responses.

Flexibility to adapt to stream features and behaviors as they evolve must be included in stream reclamation planning. The amenity and ecology of streams may be enhanced through the landscape design options of 1) corridor reservation, 2) bank treatment, 3) geomorphic restoration, and 4) grade control.

Corridor reservation - Reserving stream corridors and valleys to accommodate natural stream meandering, aggradation, degradation, and over bank flows allows streams to find their own form and generate less ongoing erosion. In California, open stream corridors in recent urban developments have produced recreational open space, irrigation of streamside plantings, and the aesthetic amenity of flowing water.

Bank treatment - The use of armoring, vegetative cover, and flow deflection may be used to influence a channel's form, stability, and biotic habitat. To prevent bank erosion, armoring can be done with rigid construction materials, such as concrete, masonry, wood planks and logs, riprap, and gabions. Concrete linings have been criticized because of their lack of provision of biotic habitat. In contrast, riprap and gabions make relatively porous and flexible linings. Boulders, placed in the bed reduce velocity and erosive power.

Riparian vegetation can stabilize the banks of streams that are at or near a condition of equilibrium. Binding networks of roots increase bank shear strength. During flood flows, resilient vegetation is forced into erosion-inhibiting mats. The roughness of vegetation leads to lower velocity, further reducing erosive effects. Structural flow deflection can protect banks from erosion or alter fish habitat. By concentrating flow, a deflector causes a pool to be scoured in the bed.

Geomorphic restoration – Restoration refers to alteration of disturbed streams so their form and behavior emulate those of undisturbed streams. Natural meanders are retained, with grading to gentle slopes on the inside of curves to allow point bars and riffle-pool sequences to develop. Trees are retained to provide scenic quality, biotic productivity, and roots for bank stabilization, supplemented by plantings where necessary.

A restorative approach can be successful where the stream is already approaching equilibrium. However, if upstream urbanization continues new flow regimes will be generated that could disrupt the equilibrium of the treated system.

Grade Control - A grade control structure is a level shelf of a permanent material, such as stone, masonry, or concrete, over which stream water flows. A grade control structure is called a sill, weir, or drop structure, depending on the relation of its invert elevation to upstream and downstream channels.

A sill is installed at the preexisting channel bed elevation to prevent upstream migration of nick points. It establishes a firm base level below which the upstream channel can not erode.

A weir or check dam is installed with invert above the preexisting bed elevation. A weir raises the local base level of the stream and causes aggradation upstream. The gradient, velocity, and erosive potential of the stream channel are reduced. A drop structure lowers the downstream invert below its preexisting elevation, reducing downstream gradient and velocity. Weirs and drop structure control erosion by dissipating energy and reducing slope velocity.

When carefully applied, grade control structures can be highly versatile in establishing human and environmental benefits in stabilized channels. To be successful, application of grade control structures should be guided by analysis of the stream system both upstream and downstream from the area to he reclaimed.

Examples

The California Department of Water Resources began the Urban Stream Restoration Program in 1985. The program provides grant funds to municipalities and community groups to implement stream restoration projects. The projects reduce damages from streambank aid watershed instability arid floods while restoring streams' aesthetic, recreational, and fish and wildlife values.

In Buena Vista Park, upper floodway slopes are gentle and grassed to achieve continuity of usable park land across the channel of small boulders at the base of the slopes.

The San Diego River is a large, vegetative lined channel, which was planted in a variety of species to support riparian wildlife while stabilizing the steep banks of the floodway.

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Infiltration Trench

TC-10



Maintenance Concerns, Objectives, and Goals

- Accumulation of Metals
- Clogged Soil Outlet Structures
- Vegetation/Landscape Maintenance

General Description

An infiltration trench is a long, narrow, rock-filled trench with no outlet that receives stormwater runoff. Runoff is stored in the void space between the stones and infiltrates through the bottom and into the soil matrix. Infiltration trenches perform well for removal of fine sediment and associated pollutants. Pretreatment using buffer strips, swales, or detention basins is important for limiting amounts of coarse sediment entering the trench which can clog and render the trench ineffective.

Targeted Constituents

✓	Sediment	■
✓	Nutrients	■
✓	Trash	■
✓	Metals	■
✓	Bacteria	■
✓	Oil and Grease	■
✓	Organics	■

Legend *(Removal Effectiveness)*

● Low ■ High

▲ Medium

Inspection/Maintenance Considerations

Frequency of clogging is dependant on effectiveness of pretreatment, such as vegetated buffer strips, at removing sediments. See appropriate maintenance factsheets for associated pretreatment. If the trench clogs, it may be necessary to remove and replace all or part of the filter fabric and possibly the coarse aggregate. Clogged infiltration trenches with surface standing water can become a nuisance due to mosquito breeding. Maintenance efforts associated with infiltration trenches should include frequent inspections to ensure that water infiltrates into the subsurface completely at a recommended infiltration rate of 72 hours or less to prevent creating mosquito and other vector habitats. Most of the maintenance should be concentrated on the pretreatment practices, such as buffer strips and swales upstream of the trench to ensure that sediment does not reach the infiltration trench. Regular inspection should determine if the sediment removal structures require routine maintenance. Infiltration trenches should not be put into operation until the upstream tributary area is stabilized.

CASQA
California Stormwater Quality Association

Inspection Activities	Suggested Frequency
■ Inspect after every major storm for the first few months to ensure proper functioning. Drain times should be observed to confirm that designed drain times has been achieved.	After construction
■ Inspect facility for signs of wetness or damage to structures, signs of petroleum hydrocarbon contamination, standing water, trash and debris, sediment accumulation, slope stability, standing water, and material buildup. ■ Check for standing water or, if available, check observation wells following 3 days of dry weather to ensure proper drain time. ■ Inspect pretreatment devices and diversion structures for damage, sediment buildup, and structural damage.	Semi-annual and after extreme events
■ Trenches with filter fabric should be inspected for sediment deposits by removing a small section of the top layer. If inspection indicates that the trench is partially or completely clogged, it should be restored to its design condition.	Annual
Maintenance Activities	**Suggested Frequency**
■ Repair undercut and eroded areas at inflow and outflow structures. ■ Remove sediment, debris, and oil/grease from pretreatment devices and overflow structures.	Standard maintenance (as needed)
■ Remove trash, debris, grass clippings, trees, and other large vegetation from the trench perimeter and dispose of properly. ■ Mow and trim vegetation to prevent establishment of woody vegetation, and for aesthetic and vector reasons.	Semi-annual, more often as needed
■ Clean out sediment traps, forebays, inlet/outlet structures, overflow spillway, and trenches if necessary. ■ Remove grass clippings, leaves, and accumulated sediment from the surface of the trench. Replace first layer of aggregate and filter fabric if clogging appears only to be at the surface. ■ Clean trench when loss of infiltrative capacity is observed. If drawdown time is observed to have increased significantly over the design drawdown time, removal of sediment may be necessary. This is an expensive maintenance activity and the need for it can be minimized through prevention of upstream erosion.	Annual
■ If bypass capability is available, it may be possible to regain the infiltration rate in the short term by providing an extended dry period. ■ Seed or sod to restore ground cover.	5-year maintenance
■ Total rehabilitation of the trench should be conducted to maintain storage capacity within 2/3 of the design treatment volume and 72-hour exfiltration rate limit. ■ Trench walls should be excavated to expose clean soil. ■ All of the stone aggregate and filter fabric or media must be removed. Accumulated sediment should be stripped from the trench bottom. At this point the bottom may be scarified or tilled to help induce infiltration. New fabric and clean stone aggregate should be refilled.	Upon failure

Additional Information

Infiltration practices have historically had a high rate of failure compared to other stormwater management practices. One study conducted in Prince George's County, Maryland (Galli, 1992), revealed that less than half of the infiltration trenches investigated (of about 50) were still functioning properly, and less than one-third still functioned properly after 5 years. Many of these practices, however, did not incorporate advanced pretreatment. By carefully selecting the location and improving the design features of infiltration practices, their performance should improve.

It is absolutely critical that settleable particles and floatable organic materials be removed from runoff water before it enters the infiltration trench. The trench will clog and become nonfunctional if excessive particulate matter is allowed to enter the trench.

Cold climate considerations – see http://www.cwp.org/cold-climates.htm

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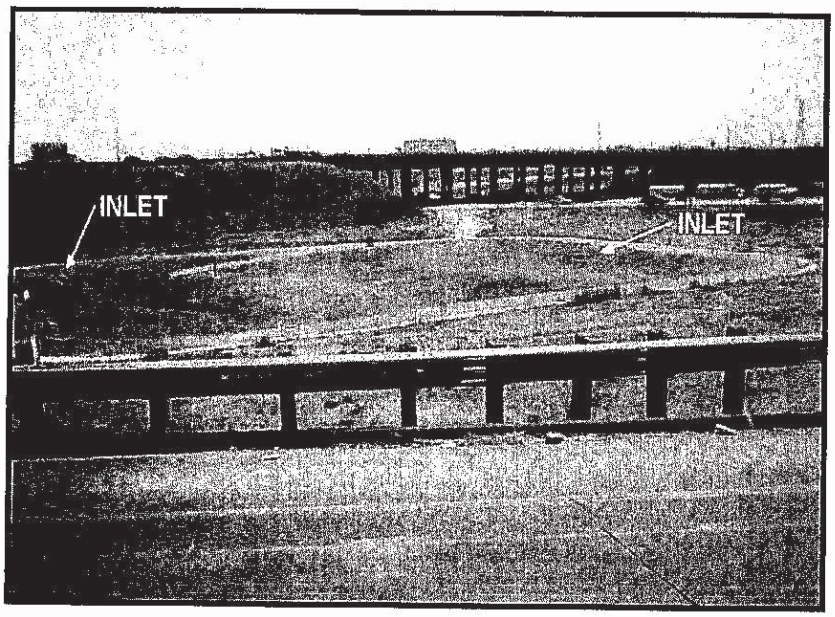
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Infiltration Basin

TC-11



Maintenance Concerns, Objectives, and Goals

- Vector Control
- Clogged soil or outlet structures
- Vegetation/Landscape Maintenance
- Groundwater contamination
- Accumulation of metals
- Aesthetics

General Description

An infiltration basin is a shallow impoundment that is designed to infiltrate stormwater. Infiltration basins use the natural filtering ability of the soil to remove pollutants in stormwater runoff. Infiltration facilities store runoff until it gradually exfiltrates through the soil and eventually into the water table. This practice has high pollutant removal efficiency and can also help recharge groundwater, thus helping to maintain low flows in stream systems. Infiltration basins can be challenging to apply on many sites, however, because of soils requirements. In addition, some studies have shown relatively high failure rates compared with other management practices.

Targeted Constituents

✓	Sediment	■
✓	Nutrients	■
✓	Trash	■
✓	Metals	■
✓	Bacteria	■
✓	Oil and Grease	■
✓	Organics	■

Legend *(Removal Effectiveness)*

● Low ■ High

▲ Medium

Inspection/Maintenance Considerations

Infiltration basins perform better in well-drained permeable soils. Infiltration basins in areas of low permeability can clog within a couple years, and require more frequent inspections and maintenance. The use and regular maintenance of pretreatment BMPs will significantly minimize maintenance requirements for the basin. Spill response procedures and controls should be implemented to prevent spills from reaching the infiltration system.

Scarification or other disturbance should only be performed when there are actual signs of clogging or significant loss of infiltrative capacity, rather than on a routine basis. Always remove deposited sediments before scarification, and use a hand-guided rotary tiller, if possible, or a disc harrow pulled by a light tractor. This BMP may require groundwater monitoring. Basins cannot be put into operation until the upstream tributary area is stabilized.

CASQA California Stormwater Quality Association

Clogged infiltration basins with surface standing water can become a breeding area for mosquitoes and midges. Maintenance efforts associated with infiltration basins should include frequent inspections to ensure that water infiltrates into the subsurface completely (recommended infiltration rate of 72 hours or less) and that vegetation is carefully managed to prevent creating mosquito and other vector habitats.

Inspection Activities	Suggested Frequency
■ Observe drain time for a storm after completion or modification of the facility to confirm that the desired drain time has been obtained. ■ Newly established vegetation should be inspected several times to determine if any landscape maintenance (reseeding, irrigation, etc.) is necessary.	Post construction
■ Inspect for the following issues: differential accumulation of sediment, signs of wetness or damage to structures, erosion of the basin floor, dead or dying grass on the bottom, condition of riprap, drain time, signs of petroleum hydrocarbon contamination, standing water, trash and debris, sediment accumulation, slope stability, pretreatment device condition	Semi-annual and after extreme events
Maintenance Activities	**Suggested Frequency**
■ Factors responsible for clogging should be repaired immediately. ■ Weed once monthly during the first two growing seasons.	Post construction
■ Stabilize eroded banks. ■ Repair undercut and eroded areas at inflow and outflow structures. ■ Maintain access to the basin for regular maintenance activities. ■ Mow as appropriate for vegetative cover species. ■ Monitor health of vegetation and replace as necessary. ■ Control mosquitoes as necessary. ■ Remove litter and debris from infiltration basin area as required.	Standard maintenance (as needed)
■ Mow and remove grass clippings, litter, and debris. ■ Trim vegetation at the beginning and end of the wet season to prevent establishment of woody vegetation and for aesthetic and vector reasons. ■ Replant eroded or barren spots to prevent erosion and accumulation of sediment.	Semi-annual
■ Scrape bottom and remove sediment when accumulated sediment reduces original infiltration rate by 25-50%. Restore original cross-section and infiltration rate. Properly dispose of sediment. ■ Seed or sod to restore ground cover. ■ Disc or otherwise aerate bottom. ■ Dethatch basin bottom.	3-5 year maintenance

Additional Information

In most cases, sediment from an infiltration basin does not contain toxins at levels posing a hazardous concern. Studies to date indicate that pond sediments are generally below toxicity limits and can be safely landfilled or disposed onsite. Onsite sediment disposal is always preferable (if local authorities permit) as long as the sediments are deposited away from the shoreline to prevent their reentry into the pond and away from recreation areas, where they could possibly be ingested by young children. Sediments should be tested for toxicants in compliance with current disposal requirements if land uses in the catchment include commercial or industrial zones, or if visual or olfactory indications of pollution are noticed. Sediments containing high levels of pollutants should be disposed of properly.

Light equipment, which will not compact the underlying soil, should be used to remove the top layer of sediment. The remaining soil should be tilled and revegetated as soon as possible.

Sediment removal within the basin should be performed when the sediment is dry enough so that it is cracked and readily separates from the basin floor. This also prevents smearing of the basin floor.

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Extended Detention Basin TC-22



Maintenance Concerns, Objectives, and Goals

- Vector/Pest Control
- Sediment and Trash Removal
- Vegetation/Landscape Maintenance
- Re-suspension of settled material
- Clogging of the Outlet

General Description

Dry extended detention ponds (a.k.a. dry ponds, extended detention basins, detention ponds, extended detention ponds) are basins whose outlets have been designed to detain the stormwater runoff from a water quality design storm for some minimum time (e.g., 72 hours) to allow particles and associated pollutants to settle. Unlike wet ponds, these facilities do not have a large permanent pool. They can also be used to provide flood control by including additional flood detention storage.

Inspection/Maintenance Considerations

Inspections should be conducted semi-annually and after significant storm events to identify potential problems early. Most maintenance efforts will need to be directed toward vegetation management and vector control, which may focus on basic housekeeping practices such as removal of debris accumulations and vegetation management to ensure that the basin dewaters completely (recommended 72 hour residence time or less) to prevent creating mosquito and other vector habitats.

Targeted Constituents

✓	Sediment	▲
✓	Nutrients	●
✓	Trash	■
✓	Metals	▲
✓	Bacteria	▲
✓	Oil and Grease	▲
✓	Organics	▲

Legend *(Removal Effectiveness)*

● Low ■ High

▲ Medium

CASQA California Stormwater Quality Association

Inspection Activities	Suggested Frequency
■ Inspect after several storm events for bank stability, vegetation growth, and to determine if the desired residence time has been achieved. ■ Inspect outlet structure for evidence of clogging or outflow release velocities that are greater than design flow.	Post construction
■ Inspect for the following issues: differential settlement, cracking; erosion of pond banks or bottom, leakage, or tree growth on the embankment; the condition of the riprap in the inlet, clogging of outlet and pilot channels; standing water, slope stability, presence of burrows; sediment accumulation in the basin, forebay, and outlet structures; trash and debris, and the vigor and density of the grass turf on the basin side slopes and floor.	Semi-annual, after significant storms, or more frequent
■ Inspect for the following issues: subsidence, damage to the emergency spillway; inadequacy of the inlet/outlet channel erosion control measures; changes in the condition of the pilot channel, accumulated sediment volume, and semi-annual inspection items.	Annual
■ During inspections, changes to the extended storage pond or the contributing watershed should be noted, as these may affect basin performance.	Annual inspection

Maintenance Activities	Suggested Frequency
■ If necessary, modify the outlet orifice to achieve design values if inspection indicates modifications are necessary. ■ Repair undercut or eroded areas. ■ Mow side slopes. ■ Manage pesticide and nutrients. ■ Remove litter and debris. ■ Control mosquitoes as necessary.	As needed
■ Remove accumulated trash and debris from the basin, around the riser pipe, side slopes, embankment, emergency spillway, and outflow trash racks. The frequency of this activity may be altered to meet specific site conditions. ■ Trim vegetation at the beginning and end of the wet season to prevent establishment of woody vegetation and for aesthetic and vector reasons.	Semi-annual, or more frequent, as needed
■ Seed or sod to restore dead or damaged ground cover. ■ Repair erosion to banks and bottom as required.	Annual maintenance (as needed)
■ Supplement wetland plants if a significant portion have not been established (at least 50% of the surface area). ■ Remove nuisance plant species.	Annual maintenance (if needed)
■ Remove sediment from the forebay to reduce frequency of main basin cleaning.	3- to 5-year maintenance
■ Monitor sediment accumulation and remove accumulated sediment and regrade about every 10 years or when the accumulated sediment volume exceeds 10-20% of the basin volume, or when accumulation reaches 6 inches or if resuspension is observed. Clean in early spring so vegetation damaged during cleaning has time to re-establish.	Every 10-25 years

Additional Information

In most cases, sediment from extended detention basin does not contain toxins at levels posing a hazardous concern. Studies to date indicate that pond sediments are likely to meet toxicity limits and can be safely landfilled or disposed of onsite. Onsite sediment disposal is always preferable (if local authorities permit it) as long as the sediments are deposited away from the shoreline to prevent their re-entry into the pond.

Sediments should be tested for toxin in compliance with current disposal requirements if land uses in the catchment include commercial or industrial zones, or if visual or olfactory indications of pollution are noticed.

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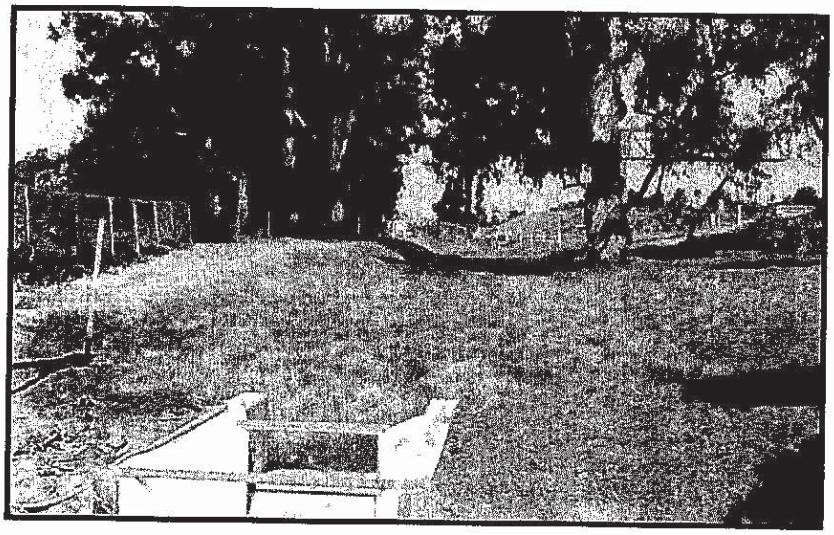
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Vegetated Swale

TC-30



Maintenance Concerns, Objectives, and Goals

- Channelization
- Vegetation/Landscape Maintenance
- Vector Control
- Aesthetics
- Hydraulic and Removal Efficacy

General Description

Vegetated swales are open, shallow channels with vegetation covering the side slopes and bottom that collect and slowly convey runoff flow to downstream discharge points. They are designed to treat runoff through filtering by the vegetation in the channel, filtering through a subsoil matrix, and/or infiltration into the underlying soils. Swales can be natural or manmade. They trap particulate pollutants (suspended solids and trace metals), promote infiltration, and reduce the flow velocity of stormwater runoff. Vegetated swales can serve as part of a stormwater drainage system and can replace curbs, gutters and storm sewer systems. Therefore, swales are best suited for residential, industrial, and commercial areas with low flow and smaller populations.

Targeted Constituents

✓	Sediment	▲
✓	Nutrients	●
✓	Trash	●
✓	Metals	▲
✓	Bacteria	●
✓	Oil and Grease	▲
✓	Organics	▲

Legend *(Removal Effectiveness)*

● Low ■ High

▲ Medium

Inspection/Maintenance Considerations

It is important to consider that a thick vegetative cover is needed for vegetated swales to function properly. Usually, swales require little more than normal landscape maintenance activities such as irrigation and mowing to maintain pollutant removal efficiency. Swales can become a nuisance due to mosquito breeding in standing water if obstructions develop (e.g., debris accumulation, invasive vegetation) and/or if proper drainage slopes are not implemented and maintained. The application of fertilizers and pesticides should be minimized.

CASQA
California Stormwater Quality Association

Inspection Activities	Suggested Frequency
■ Inspect after seeding and after first major storms for any damages.	Post construction
■ Inspect for signs of erosion, damage to vegetation, channelization of flow, debris and litter, and areas of sediment accumulation. Perform inspections at the beginning and end of the wet season. Additional inspections after periods of heavy runoff are desirable.	Semi-annual
■ Inspect level spreader for clogging, grass along side slopes for erosion and formation of rills or gullies, and sand/soil bed for erosion problems.	Annual
Maintenance Activities	**Suggested Frequency**
■ Mow grass to maintain a height of 3–4 inches, for safety, aesthetic, or other purposes. Litter should always be removed prior to mowing. Clippings should be composted. ■ Irrigate swale during dry season (April through October) or when necessary to maintain the vegetation. ■ Provide weed control, if necessary to control invasive species.	As needed (frequent, seasonally)
■ Remove litter, branches, rocks blockages, and other debris and dispose of properly. ■ Maintain inlet flow spreader (if applicable). ■ Repair any damaged areas within a channel identified during inspections. Erosion rills or gullies should be corrected as needed. Bare areas should be replanted as necessary.	Semi-annual
■ Declog the pea gravel diaphragm, if necessary. ■ Correct erosion problems in the sand/soil bed of dry swales. ■ Plant an alternative grass species if the original grass cover has not been successfully established. Reseed and apply mulch to damaged areas.	Annual (as needed)
■ Remove all accumulated sediment that may obstruct flow through the swale. Sediment accumulating near culverts and in channels should be removed when it builds up to 3 in. at any spot, or covers vegetation, or once it has accumulated to 10% of the original design volume. Replace the grass areas damaged in the process. ■ Rototill or cultivate the surface of the sand/soil bed of dry swales if the swale does not draw down within 48 hours.	As needed (infrequent)

Additional Information

Recent research (Colwell et al., 2000) indicates that grass height and mowing frequency have little impact on pollutant removal. Consequently, mowing may only be necessary once or twice a year for safety or aesthetics or to suppress weeds and woody vegetation.

References

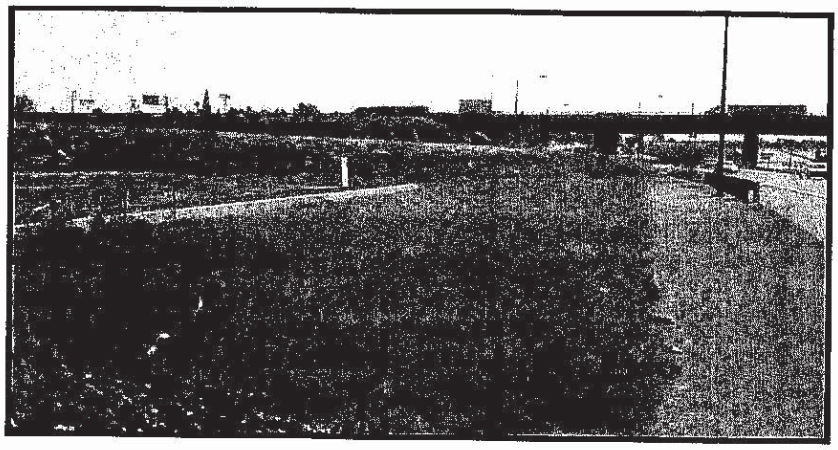
Metropolitan Council, Urban Small Sites Best Management Practices Manual. Available at: http://www.metrocouncil.org/environment/Watershed/BMP/manual.htm

U.S. Environmental Protection Agency, Post-Construction Stormwater Management in New Development & Redevelopment BMP Factsheets. Available at: cfpub.epa.gov/npdes/stormwater/menuofbmps/bmp_files.cfm

Ventura Countywide Stormwater Quality Management Program, Technical Guidance Manual for Stormwater Quality Control Measures. July, 2002.

Vegetated Buffer Strip

TC-31



Maintenance Concerns, Objectives, and Goals

- Clogged Soil or Outlet Structures
- Invasive Species Management
- Vegetation/Landscape Maintenance
- Erosion
- Channelization of Flow
- Aesthetics

General Description

Grassed buffer strips (vegetated filter strips, filter strips, and grassed filters) are vegetated surfaces that are designed to treat sheet flow from adjacent surfaces. Filter strips function by slowing runoff velocities and allowing sediment and other pollutants to settle and by providing some infiltration into underlying soils. Filter strips were originally used as an agricultural treatment practice and have more recently evolved into an urban practice. With proper design and maintenance, filter strips can provide relatively high pollutant removal. In addition, the public views them as landscaped amenities and not as stormwater infrastructure. Consequently, there is little resistance to their use.

Targeted Constituents

✓	Sediment	■
✓	Nutrients	●
✓	Trash	▲
✓	Metals	■
✓	Bacteria	●
✓	Oil and Grease	■
✓	Organics	▲

Legend *(Removal Effectiveness)*

● Low ■ High

▲ Medium

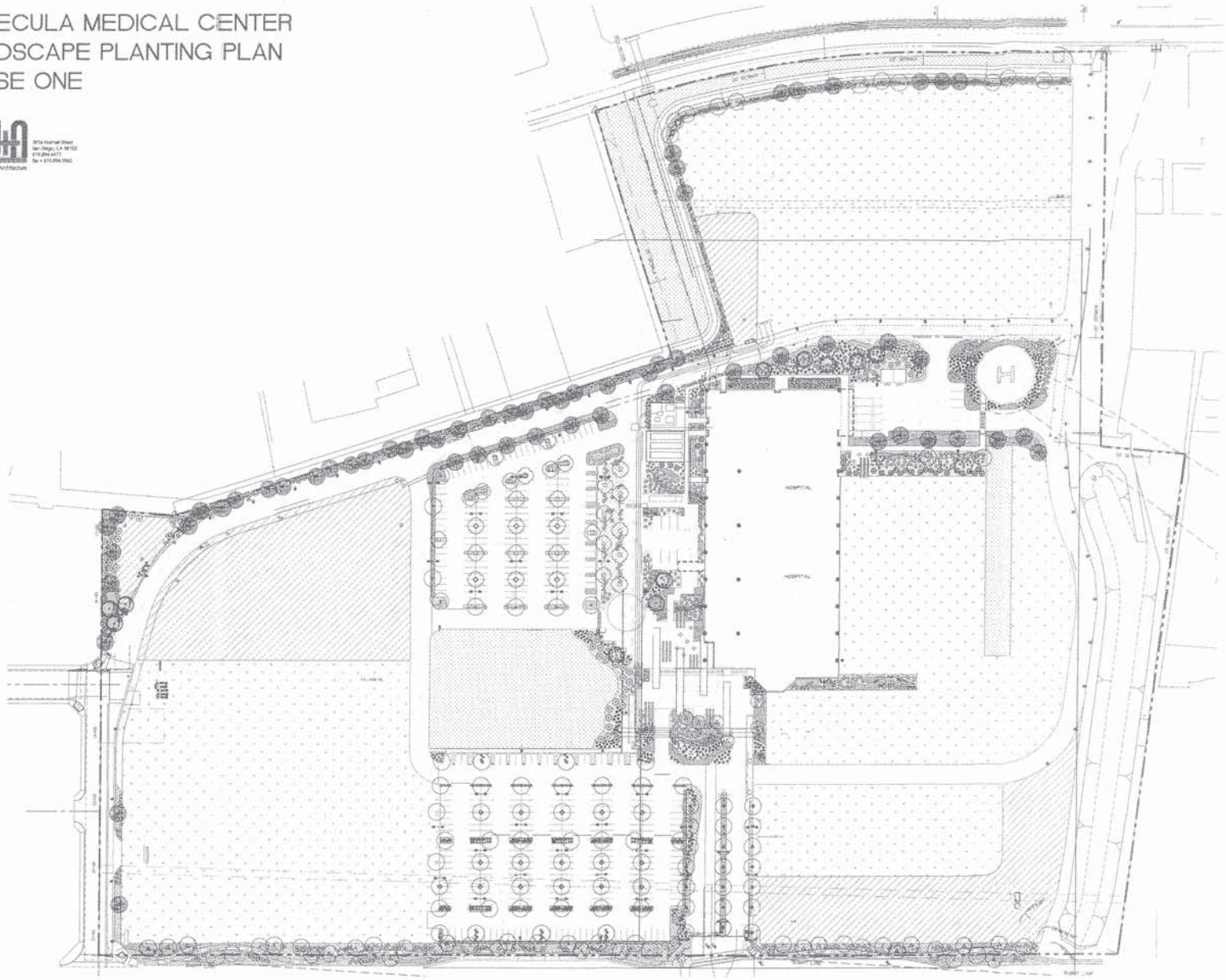
Inspection/Maintenance Considerations

Vegetated buffer strips require frequent landscape maintenance. In many cases, vegetated buffer strips initially require intense maintenance, but less maintenance is needed over time. In many cases, maintenance tasks can be completed by a landscaping contractor. Maintenance requirements typically include grass or shrub-growing activities such as irrigation, mowing, trimming, removal of invasive species, and replanting when necessary. Buffer strips require more tending as the volume of sediment increases. Vegetated buffer strips can become a nuisance due to mosquito breeding in level spreaders (unless designed to dewater completely in 72 hours or less) and/or if proper drainage slopes are not maintained.

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TEMECULA MEDICAL CENTER
LANDSCAPE PLANTING PLAN
PHASE ONE

KTU+A
Planning | Landscape Architecture



Inspection Activities	Suggested Frequency
■ Once the vegetated buffer strip is established, inspect at least three times per year. Repair all damage immediately. ■ Inspect buffer strips after seeding and repair as needed.	Post construction
■ Inspect buffer strip and repair all damage immediately. ■ Inspect soil and repair eroded areas.	After major storms
■ Inspect for erosion or damage to vegetation, preferably at the end of the wet season to schedule summer maintenance and before major fall runoff to be sure the strips are ready for winter. However, additional inspection after periods of heavy runoff is desirable. ■ Inspect pea-gravel diaphragm/level spreader for clogging and effectiveness and remove built-up sediment. ■ Inspect for rolls and gullies. Immediately fill with topsoil, install erosion control blanket and seed or sod. ■ Inspect to ensure grass is well established. If not, either prepare soil and reseed or replace with alternative species. Install erosion control blanket. ■ Check for debris and litter, and areas of sediment accumulation.	Semi-annual

Maintenance Activities	Suggested Frequency
■ Water plants daily for 2 weeks after construction.	Post construction
■ Mow regularly to maintain vegetation height between 2 - 4 inches, and to promote thick, dense vegetative growth. Cut only when soil is dry to prevent tracking damage to vegetation, soil compaction and flow concentrations. Clippings are to be removed immediately after mowing. ■ Remove all litter, branches, rocks, or other debris. Damaged areas of the filter strip should be repaired immediately by reseeding and applying mulch. ■ Regularly maintain inlet flow spreader. ■ Irrigate during dry season (April through October) when necessary to maintain the vegetation.	Frequently, as needed
■ Remulch void areas. ■ Treat diseased trees and shrubs, remove dead vegetation.	Semi-annual
■ Remove sediment and replant in areas of buildup. Sediment accumulating near culverts and in channels should be removed when it builds up to 3 in. at any spot, or covers vegetation. ■ Limit fertilizer applications based on plant vigor and soil test results. ■ Rework or replant buffer strip if concentrated flow erodes a channel through the strip.	Annual

Additional Information

Recent research (Colwell et al., 2000) indicates that grass height and mowing frequency have little impact on pollutant removal. Consequently, mowing may only be necessary once or twice a year for safety or aesthetics or to suppress weeds and woody vegetation.

Trash tends to accumulate in swale areas, particularly along highways. The need for litter removal is determined through periodic inspection, but litter should always be removed prior to mowing.

References

Metropolitan Council, Urban Small Sites Best Management Practices Manual. Available at: http://www.metrocouncil.org/environment/Watershed/BMP/manual.htm

U.S. Environmental Protection Agency, Post-Construction Stormwater Management in New Development & Redevelopment BMP Factsheets. Available at: cfpub.epa.gov/npdes/stormwater/menuofbmps/bmp_files.cfm

Ventura Countywide Stormwater Quality Management Program, Technical Guidance Manual for Stormwater Quality Control Measures. July, 2002.

Inspection Activities	Suggested Frequency
■ Inspect soil and repair eroded areas.	Monthly
■ Inspect for erosion or damage to vegetation, preferably at the end of the wet season to schedule summer maintenance and before major fall runoff to be sure the strips are ready for winter. However, additional inspection after periods of heavy runoff is desirable.	
■ Inspect to ensure grass is well established. If not, either prepare soil and reseed or replace with alternative species. Install erosion control blanket. ■ Check for debris and litter, and areas of sediment accumulation. ■ Inspect health of trees and shrubs.	Semi-annual inspection

Maintenance Activities	Suggested Frequency
■ Water plants daily for 2 weeks.	At project completion
■ Remove litter and debris.	Monthly
■ Remove sediment. ■ Remulch void areas. ■ Treat diseased trees and shrubs. ■ Mow turf areas. ■ Repair erosion at inflow points. ■ Repair outflow structures. ■ Unclog underdrain. ■ Regulate soil pH regulation.	As needed
■ Remove and replace dead and diseased vegetation.	Semi-annual
■ Add mulch. ■ Replace tree stakes and wires.	Annual
■ Mulch should be replaced every 2 to 3 years or when bare spots appear. Remulch prior to the wet season.	Every 2-3 years, or as needed

Additional Information

Landscaping is critical to the function and aesthetic value of bioretention areas. It is preferable to plant the area with native vegetation, or plants that provide habitat value, where possible. Another important design feature is to select species that can withstand the hydrologic regime they will experience. At the bottom of the bioretention facility, plants that tolerate both wet and dry conditions are preferable. At the edges, which will remain primarily dry, upland species will be the most resilient. It is best to select a combination of trees, shrubs, and herbaceous materials.

References

Metropolitan Council, Urban Small Sites Best Management Practices Manual. Available at: http://www.metrocouncil.org/environment/Watershed/BMP/manual.htm

Model Urban Runoff Program: A How-To Guide for Developing Urban Runoff Programs for Small Municipalities. Prepared by City of Monterey, City of Santa Cruz, California Coastal Commission, Monterey Bay National Marine Sanctuary, Association of Monterey Bay Area Governments, Woodward-Clyde, Central Coast Regional Water Quality Control Board. July, 1998, revised February, 2002.

U.S. Environmental Protection Agency, Post-Construction Stormwater Management in New Development & Redevelopment BMP Factsheets. Available at: cfpub.epa.gov/npdes/stormwater/menuofbmps/bmp_files.cfm

Ventura Countywide Stormwater Quality Management Program, Technical Guidance Manual for Stormwater Quality Control Measures. July, 2002.

Water Quality Inlet

TC-50

General Description

Water quality inlets (WQIs), also commonly called trapping catch basins, oil/grit separators or oil/water separators, consist of one or more chambers that promote sedimentation of coarse materials and separation of free oil (as opposed to emulsified or dissolved oil) from stormwater. Some WQIs also contain screens to help retain larger or floating debris, and many of the newer designs also include a coalescing unit that helps promote oil/water separation.

These devices are appropriate for capturing hydrocarbon spills, but provide very marginal sediment removal and are not very effective for treatment of stormwater runoff. WQIs typically capture only the first portion of runoff for treatment and are generally used for pretreatment before discharging to other best management practices (BMPs).

Inspection/Maintenance Considerations

High sediment loads can interfere with the ability of the WQI to effectively separate oil and grease from the runoff. During periods of high flow, sediment can be resuspended and released from the WQI into surface waters. Maintenance of WQIs can be easily neglected because they are underground. Establishment of a maintenance schedule is helpful for ensuring proper maintenance occurs. The required maintenance effort will be site-specific due to variations in sediment and hydrocarbon loading. Since WQI residuals contain hydrocarbon by-products, they may require disposal as hazardous waste. Many WQI owners coordinate with waste haulers to collect and dispose of these residuals.

Maintenance Concerns, Objectives, and Goals

- High Sediment Loads
- Hazardous Waste
- Vector Control

Targeted Constituents

✓	Sediment	●
✓	Nutrients	●
✓	Trash	▲
✓	Metals	●
✓	Bacteria	●
✓	Oil and Grease	▲
✓	Organics	●

Legend *(Removal Effectiveness)*

● Low ■ High

▲ Medium

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Inspection Activities	Suggested Frequency
■ Inspect after every storm event to determine if maintenance is required.	Monthly during the wet season, or after significant rain events

Maintenance Activities	Suggested Frequency
■ Clean out and dispose of accumulated oil, grease, and sediments. Remove accumulated trash and debris. The clean out and disposal techniques should be environmentally acceptable and in accordance with local regulations.	Annual, before the wet season, or more frequent as needed

Additional Information

Since WQIs can be relatively deep, they may be designated as confined spaces. Caution should be exercised to comply with confined space entry safety regulations if it is required.

References

http://www.co.pierce.wa.us/pc/services/home/environ/water/swm/sppman/bmpt1.htm

Appendix E

Soils Report – Percolation Testing Memorandum
URS, March 2010

GEODESIGN INC

August 12, 2011

DPR / Turner, A Joint Venture
31560 Rancho Pueblo Road, Suite 210
Temecula, California 92592

Attention: Mr. Tom McCready

Geotechnical Considerations for On-Site Infiltration
Proposed Temecula Hospital
Temecula, California
GeoDesign Project: TurnerCons-1-05

INTRODUCTION

GeoDesign, Inc. performed a geotechnical investigation for the proposed development and summarized the results of the investigation in a report dated August 16, 2010 and six addenda.

This letter presents information regarding on-site infiltration as it relates to the conditional Office of Statewide Health Planning and Development (OSHPD) approval of the design geotechnical report and addenda for this project and also as it relates to geotechnical design assumptions and analysis.

BACKGROUND

Section 1803A.3 of the California Building Code requires the ground surface immediately adjacent to the building to be sloped at 5 percent for the purpose of directing water away from the foundation. This requirement was addressed in an OSHPD review comment that we responded to in our Addendum 6 dated May 31, 2011.

The OSHPD approval for the building development is conditional on the requirement that surface water be directed away from the building foundation system, so that infiltration of water in close proximity to the hospital building will not be permitted by OSHPD.

In addition, the site is subject to liquefaction in the event of strong ground shaking. Liquefaction potential is discussed in detail in our report dated August 16, 2010 and is the primary geologic-seismic hazard at the site.

Figure 2-Site exploration plan. The borings were drilled using a truck-mounted CME 75 drill rig, equipped with 8-inch diameter hollow-stem-auger drilling equipment, by our subcontractor, 2R Drilling of Chino, California. Earth materials encountered within the exploratory borings were classified and logged in accordance with the Unified Soil Classification System. Approximate locations of the borings are shown on Figure 2.

When subsurface conditions permitted, relatively undisturbed samples and Standard Penetration Tests (SPT) were performed in an alternating order at 5 feet intervals. The undisturbed samples were obtained using a California Soil Sampler (2.4 inch inside diameter). The SPTs were performed with a SPT sampler (1.4 inch inside diameter) without liners in accordance with the ASTM D 1586 guidelines. Both SPT and relatively undisturbed samples were driven 18 inches into the subsurface soils using a 140-pound automatic hammer with successive 30-inch drops. The number of blows required to drive the samplers into the subsurface soils was recorded at 6-inch intervals. The total number of blows required to drive the samplers the last 12 inches is recorded on the boring logs. Furthermore, bulk samples were taken from the upper 5 feet of each boring. Samples were placed in sealed containers and transported to our laboratory for testing. The boring logs are presented in Attachment A of this memorandum

Following drilling and sampling, a 3-inch diameter perforated casing was installed between depths of 5 to 15 feet below the existing ground surface and blank pipe above a depth of 5 feet, in borings B-1 through B-5, for percolation testing. In all five borings, the annular space around the perforated pipe was backfilled with ¾-inch well graded gravel to avoid the collapse / caving of the sidewalls of the test holes. All the boreholes were filled with water for pre-soaking before the actual test.

3.2 LABORATORY TESTING

In order to evaluate the soil classification of the onsite soils, laboratory tests were performed on the collected samples of the materials encountered during our investigation. Laboratory tests included the determination of in-place moisture content and dry density and grain size distribution. Results of the laboratory tests are provided in Attachment B, and test data are also presented on the exploration boring logs (Attachment A).

3.3 SUBSURFACE CONDITIONS

The general subsurface conditions for the site were evaluated using the findings of the five borings for the project.

Liquefaction may occur in saturated soils and would result in consolidation of these soils and corresponding settlement of the hospital building foundations, columns, and walls.

Our analysis summarized in our August 16, 2010 report was based on a groundwater level of approximately 1,043, which is approximately 14 feet below the lowest finish floor level.

This design groundwater level was worked out and agreed on after several discussions with the California Geological Survey (CGS) lead geologist in charge of development of State-wide geologic hazard mapping.

CONCLUSIONS

If the concept of the hospital development changed and near-surface infiltration was allowed in the upper soils, it would be necessary to completely revise our liquefaction analysis, work through revised foundation design with the structural engineer, re-submit our revised analysis to CGS, and have the structural engineer re-submit foundation plans to OSHPD. This process would undoubtedly result in substantial cost increases for the foundation and structural system and result in long-term delays in the construction.

♦ ♦ ♦

We appreciate the opportunity to be of continued service to you. Please contact us if you have questions regarding this letter.

Sincerely,

GeoDesign, Inc.

Susan F. Kirkgard, C.E.G.
Associate Geologist

Christopher J. Zadoorian, G.E.
Principal Engineer

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER JOHN ZADOORIAN
No. 2493
8/12/11
GEOTECHNICAL
STATE OF CALIFORNIA

cc: Mr. Steve Yots, Turner Construction Company (one copy)
Ms. Cynthia Galaldon, URS Corporation (one copy)
Mr. Steve Wilson, HMC Architects (three copies)

SFK:CJZ:kt
One copy submitted
Document ID: TurnerCons-1-05-081211-geol-02.doc
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Bioretention

TC-32



Maintenance Concerns, Objectives, and Goals

- Clogged Soil or Outlet Structures
- Invasive Species
- Vegetation/Landscape Maintenance
- Erosion
- Channelization of Flow
- Aesthetics

General Description

The bioretention best management practice (BMP) functions as a soil and plant-based filtration device that removes pollutants through a variety of physical, biological, and chemical treatment processes. These facilities normally consist of a grass buffer strip, sand bed, ponding area, organic layer or mulch layer, planting soil, and plants. The runoff's velocity is reduced by passing over or through a sand bed and is subsequently distributed evenly along a ponding area. Exfiltration of the stored water in the bioretention area planting soil into the underlying soils occurs over a period of days.

Targeted Constituents

✓	Sediment	■
✓	Nutrients	▲
✓	Trash	■
✓	Metals	■
✓	Bacteria	■
✓	Oil and Grease	■
✓	Organics	■

Legend *(Removal Effectiveness)*

● Low ■ High

▲ Medium

Inspection/Maintenance Considerations

Bioretention requires frequent landscaping maintenance, including measures to ensure that the area is functioning properly, as well as maintenance of the landscaping on the practice. In many cases, bioretention areas initially require intense maintenance, but less maintenance is needed over time. In many cases, maintenance tasks can be completed by a landscaping contractor, who may already be hired at the site. In cold climates the soil may freeze, preventing runoff from infiltrating into the planting soil.

CASQA California Stormwater Quality Association

URS

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Dallas, TX 75207
25338344.00006

Memorandum

2020 E. First Street. Suite 400
Santa Ana, CA 92705
Tel - (714) 835-6886
Fax - (714) 667-7147

TO: Richard Carson

FROM: Michael Smith, G.E., Praveen Yerra, EIT

DATE: March 3, 2010

SUBJECT: Percolation Testing
Temecula Regional Hospital, UHS Temecula, California
URS Job No. 25338344

1.0 INTRODUCTION

The purpose of this memo is to present the results of percolation testing for the subject project. This memorandum contains the description of the field investigation and testing conducted for the United Health Services in Temecula, California to evaluate the potential for percolation basins at the proposed Temecula Regional Hospital.

2.0 SITE LOCATION

The proposed Temecula Regional Hospital site is located to the west of the intersection of Temecula Parkway (Hwy 79) and Country Glenn way in the city of Temecula in Riverside County, California and is shown in figure 1 - Site vicinity map. Presently, the site is a vacant land adjacent to the existing Temecula Regional Hospital.

3.0 EXPLORATION PLAN

3.1 SUBSURFACE INVESTIGATION

Our field exploration for the purpose of the percolation testing involved drilling five hollow stem auger borings (B-1 through B-5) to depths of 16.5 feet in various locations of the site as shown in

The subsurface materials encountered in the percolation test borings at the existing grade generally consist of approximately 10 to 15 feet of interbedded silty sand and clayey sand materials at some locations the native is underlain by poorly graded sand material. The silty sand/clayey sand material had 15 to 35 percent passing the No. 200 sieve and poorly graded sand with 3 to 4 percent passing the No. 200 sieve. The soils were noted to be loose to medium dense based on the SPT blow count information.

3.4 GROUNDWATER

Groundwater was not encountered in any of the five borings drilled in the area investigated for potential percolation basin drilled to a maximum depth of 16.5 feet.

3.5 USDA SOIL SURVEY DATA

Data from the United States Department of Agriculture (USDA) soil survey maps and soil survey tables for the site were reviewed. The data for the subject site references Map Unit —Riverside County Western Riverside Area, California (CA679). Based on the available data, the soils at the project site are delineated by USDA are shown in Figure 3. Also, the details of the type of soils that are available at the site are compiled in Table 1.

TABLE 1: USDA SOIL SURVEY DATA

WESTERN RIVERSIDE AREA, CALIFORNIA (CA 679)			
Map Unit Symbol	**Map Unit Name**	**Hydrological Soil Group**	**USCS Classification**
GtA	Grangeville fine sandy loam, drained, 0 to 2 percent slopes	B	SM
GyC2	Greenfield sandy loam, 2 to 8 percent slopes, eroded	B	SM
RaB2	Ramona sandy loam, 2 to 5 percent slopes, eroded	B	SM
VlC2	Visalia sandy loam, 0 to 8 percent slopes, eroded	B	SM
VmA	Visalia fine sandy loam, 0 to 2 percent slopes	B	SM

Based on the available data the majority of the site soils are classified as Visalia fine sandy loam, 0 to 2 percent slopes with a map unit symbol VmA. Soils (in the upper 10 feet) are given a USCS soil classification as SM and SC and are anticipated to have a percolation rate between than 0.14 inches/hour to 1.42 inches/hour when thoroughly wet. These soils would have a very low to moderately low rate of water transmission.

3.6 PERCOLATION TESTING

Falling-head Percolation tests were performed in each of the four borings drilled within the potential percolation basin area utilizing the test procedure outlined by United States Bureau of Reclamation (USBR, 2001).

Prior to performing the percolation tests, all the sites were pre-soaked by filling the perforated casings with clear water. Following an approximately 24 hour pre-soak, the test borings were refilled with water to the existing ground surface. A water hose connected to a water tank was utilized to provide water. From a fixed reference point, the drop in water level was then measured at approximately 30-minute intervals.

In borings B-2, B-3 and B-4 (15-foot cased depth), the drop in water level was less than one-half of the wetted depth after ten consecutive trials of 30 minute intervals. Therefore, this test was continued over a period of 5-hours with water level readings taken at 30-minute intervals and the sixth hour with water level readings taken at 10-minute intervals. The percolation tests yielded percolation rates ranging from 0.1 to 0.8 inches/hour. In borings B-1 and B-5 (15-foot cased

depth), the drop in water level was higher than one-half of the wetted depth after 10 consecutive trials of 10 minute intervals. Therefore, the test was continued over a period of 3-hours with water level readings taken at 10-minute intervals. The percolation tests yielded percolation rates ranging from 2.6 to 3.4 inches/hour. The percolation test data and calculation sheets are presented in Attachment C.

A summary of the results of percolation tests is presented in Table 2.

TABLE 2: SUMMARY OF PERCOLATION TEST RESULTS

Boring/Test Number	Drilled Depth Below Existing Ground (feet)	Approximate Percolation Test Depth Interval Below Existing Ground (feet)	Percolation Rate (gallons/sq. ft./day)	Percolation Rate (inches/hour)
B-1	16.5	5 – 16.5	39.7	2.6
B-2	16.5	5 – 16.5	11.3	0.8
B-3	16.5	5 – 16.5	1.5	0.1
B-4	16.5	5 – 16.5	6.6	0.4
B-5	16.5	5 – 16.5	50.4	3.4

4.0 CONCLUSIONS

Based on the data presented herein, the percolation rate is found to be less than 0.5 inches/hour in B-3 and B-4 but is higher than 0.5 inches/hour in the rest of the borings. Based on the criteria set forth by Riverside County, for a site to be considered a potential percolation basin site, the percolation rate should be higher than 0.5 inches/hour. From the percolation rate calculations presented in Attachment C, the locations where borings B-3 and B-4 are drilled are not suitable as a percolation basin. The locations where borings B-1, B-2 and B-5 are drilled, are potential percolation basin sites with percolation rates higher than 0.5 inches/hour.

It has to be noted that in borings B-1 and B-5, the upper 15 and 10 feet has silty sand and clayey sand layers respectively with higher fines contents that could affect the rate of percolation. It is recommended, at these locations, to design the bottom of the basin at an elevation below the silty sand/clayey sand layers or include alternatives to reach in close proximity of the poorly graded sand layer that is encountered at depths of 15 feet below ground surface (bgs) at the location of the boring B-1 and 10 feet bgs at the location of boring B-5 respectively to achieve higher percolation rates.

5.0 LIMITATIONS

This memorandum has been prepared to be used solely in the design of the project described in this memorandum. This memorandum may not contain sufficient information for other uses or the purposes of other parties.

The conclusions presented in this report are based upon the assumption that the subsurface conditions do not deviate appreciably from those disclosed by the exploratory borings described herein. In view of the general geology of the area, the possibility of different conditions cannot be discounted.

Professional judgments presented in this memorandum are based on an evaluation of the technical information gathered, the understanding of the proposed construction, and the general experience in the field of geotechnical engineering. URS does not guarantee the performance of the project in any respect, only that the engineering work and judgments rendered meet the standard of care in the profession at this time and location.

6.0 REFERENCES

1. United States Bureau of Reclamation (USBR) 2001. Engineering Geology Second Edition Volume 2. Chapter 17 Water Testing for Permeability.
2. USDA Soil Survey Data and Maps *http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx*

- o0o -

We hope this memorandum meets your current project needs. If you have any questions or require additional information, please contact us.

Sincerely,
URS CORPORATION

Michael G. Smith
Principal Engineer
GE 2229 Exp. 03/31/10

Praveen Yerra, EIT
Engineer

Tables

Table 1 USDA Soil Survey Data

Table 2 Summary of Percolation Test Results

Figures

Figure 1 Site Vicinity Map

Figure 2 USDA Soil survey delineation

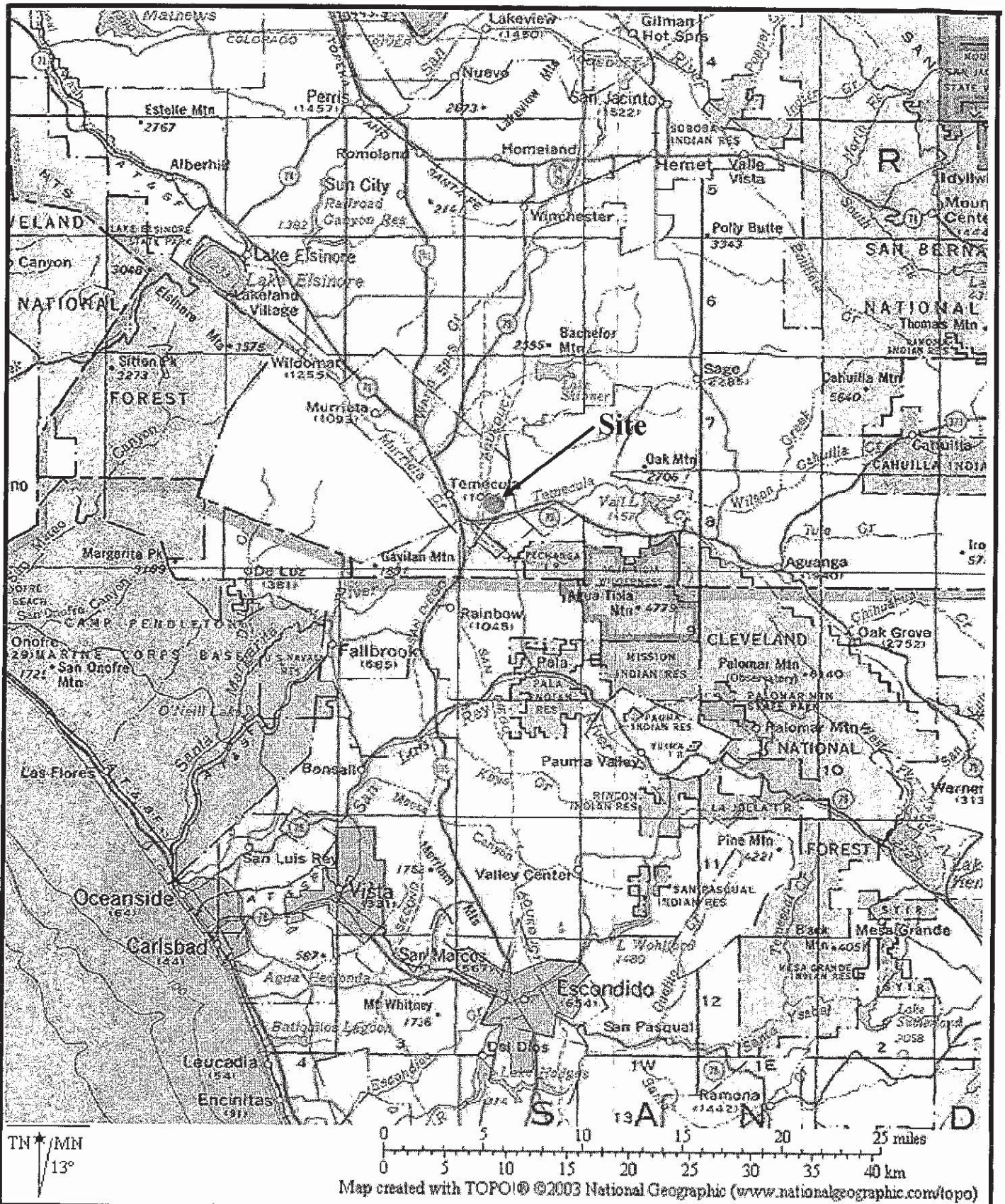
Figure 3 Site Exploration Plan

Attachment A Boring Logs

Attachment B Laboratory Test Results

Attachment C Percolation Test Data and Calculations

FIGURES

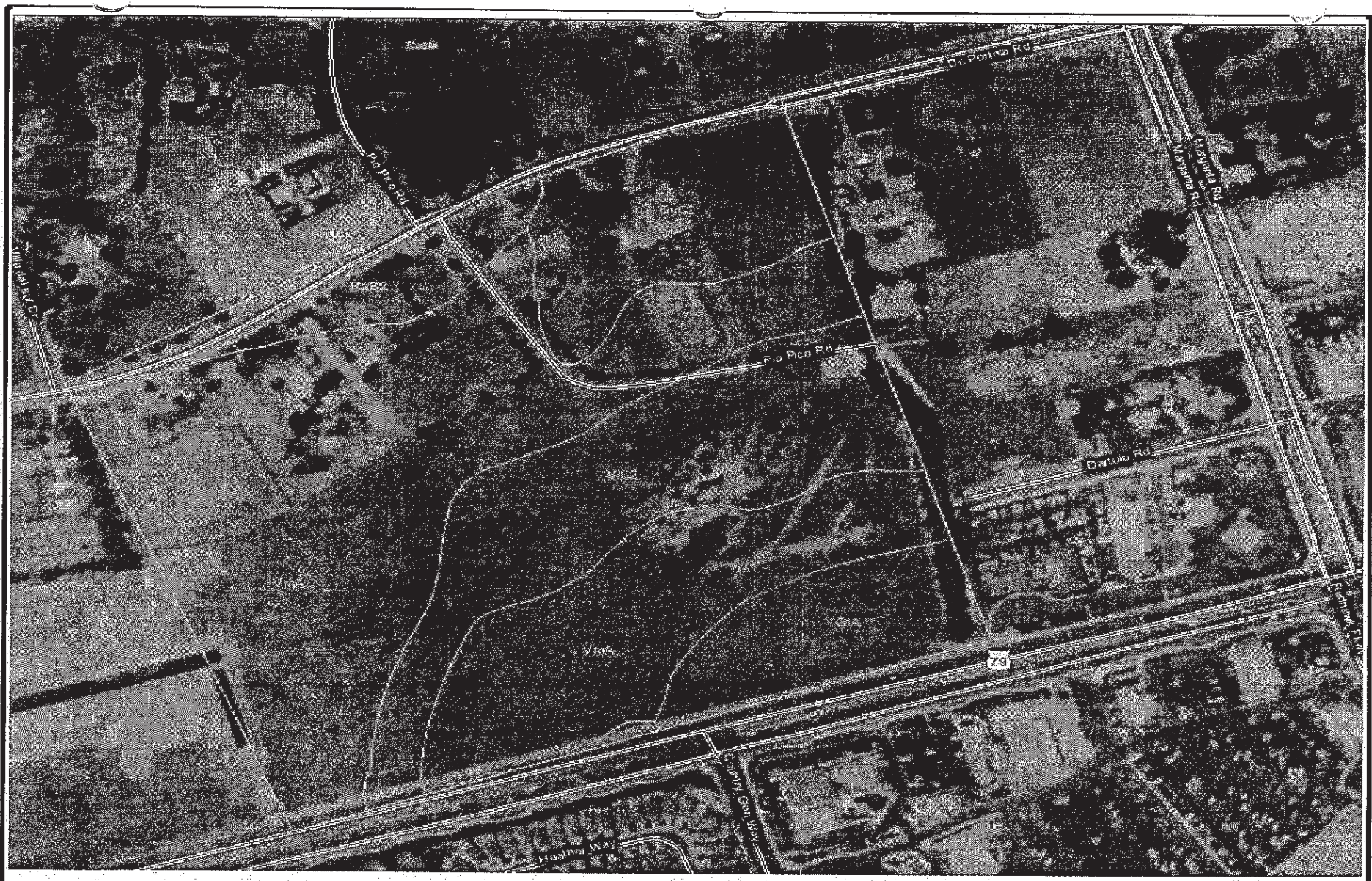


February 2010	Percolation Testing Memorandum	UHS Temecula Percolation Testing
		Site Vicinity Map

URS

FIGURE 1

EXISTING DRAINAGE CHANNEL
TEMECULA PARKWAY
EL PRADO RD
DE PORTOLA ROAD


De Portola Rd
Margarita Rd
Pala Mesa Dr
Pala Rd
Pala Rd
Pala Mesa Dr
Pala Rd
Pala Rd
Pala Rd

ATTACHMENT A
BORING LOGS

Project: UHS Temecula Percolation Testing
Project Location: Temecula, CA
Project Number: 25338344

Key to Log of Boring

Sheet A-1

GROUP SYMBOLS AND NAMES

Graphic / Symbol	Group Names
GW	Well-graded GRAVEL Well-graded GRAVEL with SAND
GP	Poorly graded GRAVEL Poorly graded GRAVEL with SAND
GW-GM	Well-graded GRAVEL with SILT Well-graded GRAVEL with SILT and SAND
GW-GC	Well-graded GRAVEL with CLAY (or SILTY CLAY) Well-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)
GP-GM	Poorly graded GRAVEL with SILT Poorly graded GRAVEL with SILT and SAND
GP-GC	Poorly graded GRAVEL with CLAY (or SILTY CLAY) Poorly graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)
GM	SILTY GRAVEL SILTY GRAVEL with SAND
GC	CLAYEY GRAVEL CLAYEY GRAVEL with SAND
GC-GM	SILTY, CLAYEY GRAVEL SILTY, CLAYEY GRAVEL with SAND
SW	Well-graded SAND Well-graded SAND with GRAVEL
SP	Poorly graded SAND Poorly graded SAND with GRAVEL
SW-SM	Well-graded SAND with SILT Well-graded SAND with SILT and GRAVEL
SW-SC	Well-graded SAND with CLAY (or SILTY CLAY) Well-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)
SP-SM	Poorly graded SAND with SILT Poorly graded SAND with SILT and GRAVEL
SP-SC	Poorly graded SAND with CLAY (or SILTY CLAY) Poorly graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)
SM	SILTY SAND SILTY SAND with GRAVEL
SC	CLAYEY SAND CLAYEY SAND with GRAVEL
SC-SM	SILTY, CLAYEY SAND SILTY, CLAYEY SAND with GRAVEL
PT	PEAT
	COBBLES COBBLES and BOULDERS BOULDERS

Graphic / Symbol	Group Names
CL	Lean CLAY Lean CLAY with SAND Lean CLAY with GRAVEL SANDY lean CLAY SANDY lean CLAY with GRAVEL GRAVELLY lean CLAY GRAVELLY lean CLAY with SAND
CL-ML	SILTY CLAY SILTY CLAY with SAND SILTY CLAY with GRAVEL SANDY SILTY CLAY SANDY SILTY CLAY with GRAVEL GRAVELLY SILTY CLAY GRAVELLY SILTY CLAY with SAND
ML	SILT SILT with SAND SILT with GRAVEL SANDY SILT SANDY SILT with GRAVEL GRAVELLY SILT GRAVELLY SILT with SAND
OL	ORGANIC lean CLAY ORGANIC lean CLAY with SAND ORGANIC lean CLAY with GRAVEL SANDY ORGANIC lean CLAY SANDY ORGANIC lean CLAY with GRAVEL GRAVELLY ORGANIC lean CLAY GRAVELLY ORGANIC lean CLAY with SAND
OL	ORGANIC SILT ORGANIC SILT with SAND ORGANIC SILT with GRAVEL SANDY ORGANIC SILT SANDY ORGANIC SILT with GRAVEL GRAVELLY ORGANIC SILT GRAVELLY ORGANIC SILT with SAND
CH	Fat CLAY Fat CLAY with SAND Fat CLAY with GRAVEL SANDY fat CLAY SANDY fat CLAY with GRAVEL GRAVELLY fat CLAY GRAVELLY fat CLAY with SAND
MH	Elastic SILT Elastic SILT with SAND Elastic SILT with GRAVEL SANDY elastic SILT SANDY elastic SILT with GRAVEL GRAVELLY elastic SILT GRAVELLY elastic SILT with SAND
OH	ORGANIC fat CLAY ORGANIC fat CLAY with SAND ORGANIC fat CLAY with GRAVEL SANDY ORGANIC fat CLAY SANDY ORGANIC fat CLAY with GRAVEL GRAVELLY ORGANIC fat CLAY GRAVELLY ORGANIC fat CLAY with SAND
OH	ORGANIC elastic SILT ORGANIC elastic SILT with SAND ORGANIC elastic SILT with GRAVEL SANDY elastic ELASTIC SILT SANDY ORGANIC elastic SILT with GRAVEL GRAVELLY ORGANIC elastic SILT GRAVELLY ORGANIC elastic SILT with SAND
OL/OH	ORGANIC SOIL ORGANIC SOIL with SAND ORGANIC SOIL with GRAVEL SANDY ORGANIC SOIL SANDY ORGANIC SOIL with GRAVEL GRAVELLY ORGANIC SOIL GRAVELLY ORGANIC SOIL with SAND

FIELD AND LABORATORY TESTS

C	Consolidation (ASTM D 2435-04)
CL	Collapse Potential (ASTM D 5333-03)
CP	Compaction Curve (CTM 216 - 06)
CR	Corrosion, Sulfates, Chlorides (CTM 643 - 99; CTM 417 - 06; CTM 422 - 06)
CU	Consolidated Undrained Triaxial (ASTM D 4767-02)
DS	Direct Shear (ASTM D 3080-04)
EI	Expansion Index (ASTM D 4829-03)
M	Moisture Content (ASTM D 2216-05)
OC	Organic Content (ASTM D 2974-07)
P	Permeability (CTM 220 - 05)
PA	Particle Size Analysis (ASTM D 422-63 [2002])
PI	Liquid Limit, Plastic Limit, Plasticity Index (AASHTO T 89-02, AASHTO T 90-00)
PL	Point Load Index (ASTM D 5731-05)
PM	Pressure Meter
PP	Pocket Penetrometer
R	R-Value (CTM 301 - 00)
SE	Sand Equivalent (CTM 217 - 99)
SG	Specific Gravity (AASHTO T 100-06)
SL	Shrinkage Limit (ASTM D 427-04)
SW	Swell Potential (ASTM D 4546-03)
TV	Pocket Torvane
UC	Unconfined Compression - Soil (ASTM D 2166-06) Unconfined Compression - Rock (ASTM D 2938-95)
UU	Unconsolidated Undrained Triaxial (ASTM D 2850-03)
UW	Unit Weight (ASTM D 4767-04)
WA	Minus #200 (ASTM D 1140)

SAMPLER GRAPHIC SYMBOLS

- Standard Penetration Test (SPT)
- Standard California Sampler
- Modified California Sampler
- Shelby Tube
- Piston Sampler
- NX Rock Core
- HQ Rock Core
- Bulk Sample
- Other (see remarks)

DRILLING METHOD SYMBOLS

- Auger Drilling
- Rotary Drilling
- Dynamic Cone or Hand Driven
- Diamond Core

WATER LEVEL SYMBOLS

- First Water Level Reading (during drilling)
- Static Water Level Reading (short-term)
- Static Water Level Reading (long-term)

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Figure A-1

Project: UHS Temecula Percolation Testing
Project Location: Temecula, CA
Project Number: 25338344

Key to Log of Boring

Sheet A-2

CONSISTENCY OF COHESIVE SOILS				
Descriptor	Unconfined Compressive Strength (tsf)	Pocket Penetrometer (tsf)	Torvane (tsf)	Field Approximation
Very Soft	< 0.25	< 0.25	< 0.12	Easily penetrated several inches by fist
Soft	0.25 - 0.50	0.25 - 0.50	0.12 - 0.25	Easily penetrated several inches by thumb
Medium Stiff	0.50 - 1.0	0.50 - 1.0	0.25 - 0.50	Can be penetrated several inches by thumb with moderate effort
Stiff	1.0 - 2.0	1.0 - 2.0	0.50 - 1.0	Readily indented by thumb but penetrated only with great effort
Very Stiff	2.0 - 4.0	2.0 - 4.0	1.0 - 2.0	Readily indented by thumbnail
Hard	> 4.0	> 4.0	> 2.0	Indented by thumbnail with difficulty

APPARENT DENSITY OF COHESIONLESS SOILS	
Descriptor	SPT N_{60} - Value (blows / foot)
Very Loose	0 - 4
Loose	5 - 10
Medium Dense	11 - 30
Dense	31 - 50
Very Dense	> 50

MOISTURE	
Descriptor	Criteria
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below water table

PERCENT OR PROPORTION OF SOILS	
Descriptor	Criteria
Trace	Particles are present but estimated to be less than 5%
Few	5 to 10%
Little	15 to 25%
Some	30 to 45%
Mostly	50 to 100%

SOIL PARTICLE SIZE		
Descriptor		Size
Boulder		> 12 inches
Cobble		3 to 12 inches
Gravel	Coarse	3/4 inch to 3 inches
	Fine	No. 4 Sieve to 3/4 inch
Sand	Coarse	No. 10 Sieve to No. 4 Sieve
	Medium	No. 40 Sieve to No. 10 Sieve
	Fine	No. 200 Sieve to No. 40 Sieve
Silt and Clay		Passing No. 200 Sieve

PLASTICITY OF FINE-GRAINED SOILS	
Descriptor	Criteria
Nonplastic	A 1/8-inch thread cannot be rolled at any water content.
Low	The thread can barely be rolled, and the lump cannot be formed when drier than the plastic limit.
Medium	The thread is easy to roll, and not much time is required to reach the plastic limit; it cannot be rerolled after reaching the plastic limit. The lump crumbles when drier than the plastic limit.
High	It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump can be formed without crumbling when drier than the plastic limit.

CEMENTATION	
Descriptor	Criteria
Weak	Crumbles or breaks with handling or little finger pressure.
Moderate	Crumbles or breaks with considerable finger pressure.
Strong	Will not crumble or break with finger pressure.

NOTE: This legend sheet provides descriptors and associated criteria for required soil description components only. Refer to Caltrans Soil and Rock Logging, Classification, and Presentation Manual (July 2007), Section 2, for tables of additional soil description components and discussion of soil description and identification.

Project: UHS Temecula Percolation Testing
Project Location: Temecula, CA
Project Number: 25338344

Log of Boring B-1

Sheet 1 of 1

Date(s) Drilled	02/11/10	Logged By	P. Yerra	Checked By	M.Smith
Drilling Method	Hollow Stem Auger	Drill Bit Size/Type	8-inch HSA drill bit	Total Depth of Borehole	16.5 feet
Drill Rig Type	CME 75	Drilling Contractor	2R Drilling	Surface Elevation	N/A
Groundwater Level(s)	Not Encountered	Sampling Method(s)	SPT, California, Bulk	Hammer Data	Automatic Hammer; 140 lbs / 30-inch drop
Borehole Backfill	Installed 3" Dia perforated PVC pipe and annular space backfilled with 3/4" Gravel	Location			

Elevation, feet	Depth, feet	SAMPLES Type	SAMPLES Number	Sampling Resistance, blows/foot	Graphic Log	MATERIAL DESCRIPTION	Drilling Method	Water Content, %	Dry Unit Weight, pcf	REMARKS AND OTHER TESTS
	0					Silty SAND (SM); Loose; dark grayish brown; moist; low plastic				Grass and dirt surface
			1					15		
	5		2	10				15		SA (30)
	10		3	7				8		WA (15)
	15		4	31		Poorly Graded SAND with SILT (SP-SM); Medium dense; yellowish brown; moist; iron oxide stains		4		
						Bottom of borehole at 16.5 feet bgs				Filled pipe with water to pre-soak for infiltration test.
	20									
	25									
	30									

Report GEO_10_SNA_CT File B1 - 5.GPJ 3/1/2010 B-1

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Figure A-3

Project: UHS Temecula Percolation Testing
Project Location: Temecula, CA
Project Number: 25338344

Log of Boring B-2

Sheet 1 of 1

Date(s) Drilled	02/11/10	Logged By	P. Yerra	Checked By	M.Smith
Drilling Method	Hollow Stem Auger	Drill Bit Size/Type	8-inch HSA drill bit	Total Depth of Borehole	16.5 feet
Drill Rig Type	CME 75	Drilling Contractor	2R Drilling	Surface Elevation	N/A
Groundwater Level(s)	Not Encountered	Sampling Method(s)	SPT, California, Bulk	Hammer Data	Automatic Hammer; 140 lbs / 30-inch drop
Borehole Backfill	Installed 3" Dia perforated PVC pipe and annular space backfilled with 3/4" Gravel	Location			

Elevation, feet	Depth, feet	SAMPLES Type	SAMPLES Number	Sampling Resistance, blows/foot	Graphic Log	MATERIAL DESCRIPTION	Drilling Method	Water Content, %	Dry Unit Weight, pcf	REMARKS AND OTHER TESTS
	0					Silty SAND (SM); dark grayish brown; moist; trace of roots and gravel				Grass and dirt surface
			1					17		
	5		2	27		Clayey SAND(SC); Medium dense; light olive brown; moist; trace gravel		11		SA (26)
	10		3	8		...becomes loose		11		
	15		4	25		...becomes medium dense, trace of organics		13		WA (32)
						Bottom of borehole at 16.5 feet bgs				Filled pipe with water to pre-soak for infiltration test.
	20									
	25									
	30									

Report: GEO_10_SNA_CT; File B1 - 5 GPJ; 3/1/2010 B-2

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Figure A-4

Project: UHS Temecula Percolation Testing
Project Location: Temecula, CA
Project Number: 25338344

Log of Boring B-3

Sheet 1 of 1

Date(s) Drilled	02/11/10	Logged By	P. Yerra	Checked By	M.Smith
Drilling Method	Hollow Stem Auger	Drill Bit Size/Type	8-inch HSA drill bit	Total Depth of Borehole	16.5 feet
Drill Rig Type	CME 75	Drilling Contractor	2R Drilling	Surface Elevation	N/A
Groundwater Level(s)	Not Encountered	Sampling Method(s)	SPT, California, Bulk	Hammer Data	Automatic Hammer; 140 lbs / 30-inch drop
Borehole Backfill	Installed 3" Dia perforated PVC pipe and annular space backfilled with 3/4" Gravel	Location			

Elevation, feet	Depth, feet	SAMPLES Type	SAMPLES Number	SAMPLES Sampling Resistance, blows/foot	Graphic Log	MATERIAL DESCRIPTION	Drilling Method	Water Content, %	Dry Unit Weight, pcf	REMARKS AND OTHER TESTS
	0					Clayey SAND (SC); dark grayish brown; moist; low to medium plasticity, with some gravel				Grass and dirt surface
			1					21		
	5		2	20				5		
						Silty SAND (SM); Medium dense; olive brown; dry to moist;				
	10		3	36				6		WA (38)
						Clayey SAND (SC); Medium dense; olive gray; moist; trace of gravel				
	15		4	17				13		SA (35)
						Bottom of borehole at 16.5 feet bgs				Filled pipe with water to pre-soak for infiltration test.
	20									
	25									
	30									

Report GEO_10_SNA_CT File B1 - 5.GPJ 3/1/2010 B-3

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Figure A-5

Project: UHS Temecula Percolation Testing
Project Location: Temecula, CA
Project Number: 25338344

Log of Boring B-4

Sheet 1 of 1

Date(s) Drilled	02/11/10	Logged By	P. Yerra	Checked By	M.Smith
Drilling Method	Hollow Stem Auger	Drill Bit Size/Type	8-inch HSA drill bit	Total Depth of Borehole	16.5 feet
Drill Rig Type	CME 75	Drilling Contractor	2R Drilling	Surface Elevation	N/A
Groundwater Level(s)	Not Encountered	Sampling Method(s)	SPT, California, Bulk	Hammer Data	Automatic Hammer; 140 lbs / 30-inch drop
Borehole Backfill	Installed 3" Dia perforated PVC pipe and annular space backfilled with 3/4" Gravel	Location			

Elevation, feet	Depth, feet	SAMPLES Type	SAMPLES Number	SAMPLES Sampling Resistance, blows/foot	Graphic Log	MATERIAL DESCRIPTION	Drilling Method	Water Content, %	Dry Unit Weight, pcf	REMARKS AND OTHER TESTS
	0					Silty SAND (SM); Medium dense, dark olive brown; moist; low to medium plasticity, with some gravel				Grass and dirt surface
			1					12		
	5		2	39		...becomes light olive brown; with trace of mica		3		SA (22)
						Clayey SAND (SC); Medium dense; olive gray; moist; low to medium plasticity				
	10		3	13				7		WA (35)
						Sandy Lean CLAY (CL); Stiff, olive brown, moist, low to medium plastic				
	15		4	13				21		
						Bottom of borehole at 16.5 feet bgs				Filled pipe with water to pre-soak for infiltration test.
	20									
	25									
	30									

Report GEO_10_SNA_CT; File B1 - 5.GPJ; 3/1/2010 B-4

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Figure A-6

Project: UHS Temecula Percolation Testing
Project Location: Temecula, CA
Project Number: 25338344

Log of Boring B-5

Sheet 1 of 1

Date(s) Drilled	02/11/10	Logged By	P. Yerra	Checked By	M.Smith
Drilling Method	Hollow Stem Auger	Drill Bit Size/Type	8-inch HSA drill bit	Total Depth of Borehole	16.5 feet
Drill Rig Type	CME 75	Drilling Contractor	2R Drilling	Surface Elevation	N/A
Groundwater Level(s)	Not Encountered	Sampling Method(s)	SPT, California, Bulk	Hammer Data	Automatic Hammer; 140 lbs / 30-inch drop
Borehole Backfill	Installed 3" Dia perforated PVC pipe and annular space backfilled with 3/4" Gravel	Location			

Elevation, feet	Depth, feet	SAMPLES Type	SAMPLES Number	Sampling Resistance, blows/foot	Graphic Log	MATERIAL DESCRIPTION	Drilling Method	Water Content, %	Dry Unit Weight, pcf	REMARKS AND OTHER TESTS
	0					Clayey SAND (SC); Loose to medium dense; dark grayish brown; moist; low to medium plasticity				Grass and dirt surface
			1					13		
	5		2	14		...becomes olive brown, trace of mica		4		
	10		3	37		Poorly Graded SAND (SP); Medium dense; dark gray; moist; trace of gravel		3		SA (3)
	15		4	19				3		WA (5)
						Bottom of borehole at 16.5 feet bgs				Filled pipe with water to pre-soak for infiltration test.
	20									
	25									
	30									

Report GEO_10_SNA_CT; File: B1 - 5.GPJ; 3/1/2010 B-5

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Figure A-7

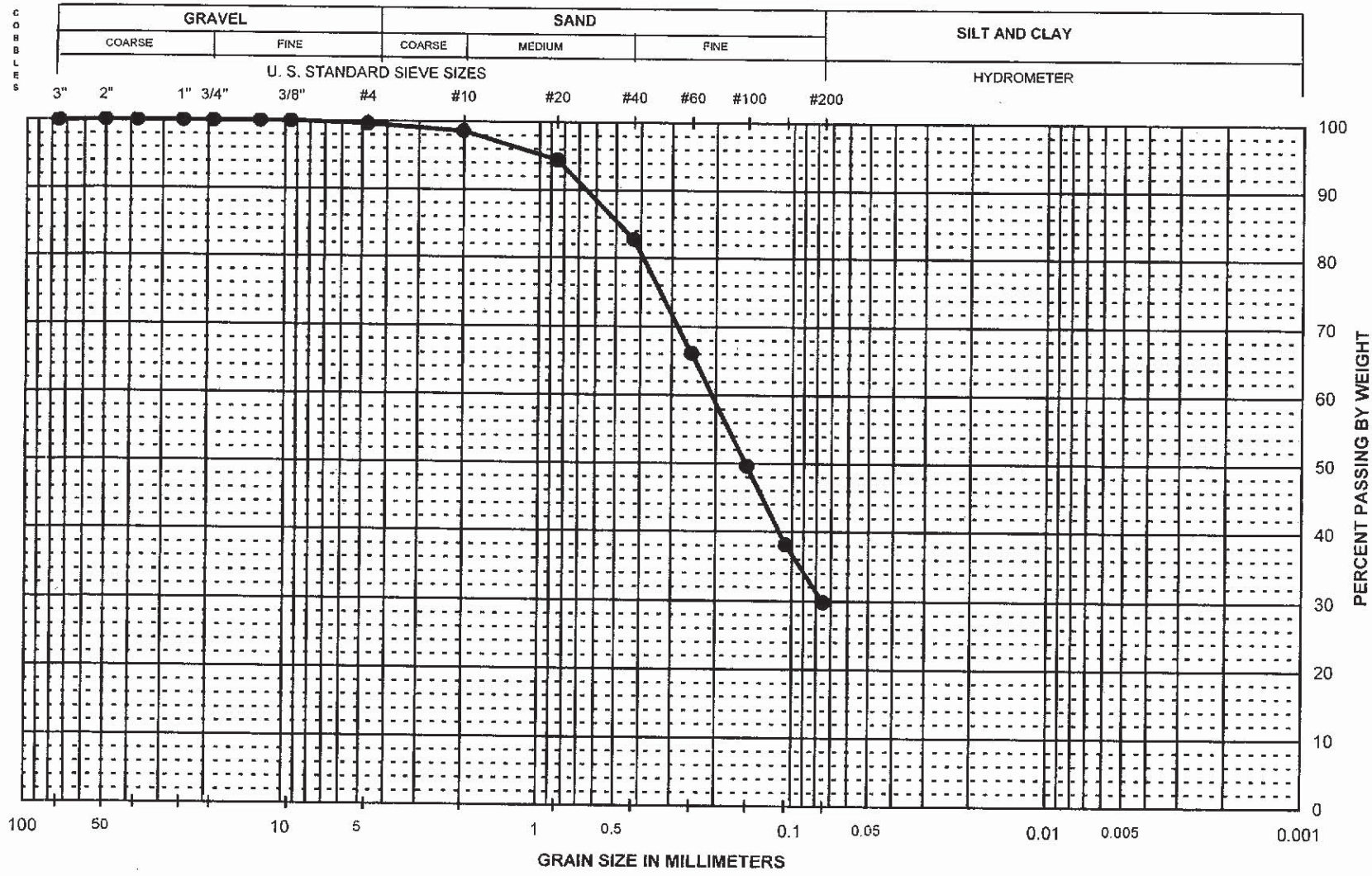
ATTACHMENT B
LABORATORY TEST RESULTS

Santa Ana Geotechnical Laboratory Testing Summary

Project Name: UHS Temecula Percolation Testing
Project Number: 25338344
Project Engineer: MGS

Exploration Number	Sample/ Specimen Number	Depth (ft)	USCS Symbol	Water Content (%)	Gravel (%)	Sand (%)	Fines (%)
B-1		0 ~ 5	SM	14.5			
B-1	1	5.0	SM	15.2	0.4	69.8	29.8
B-1	2	10.0	SM	8.0			15.2
B-1	3	15.0	SP-SM	3.8			
B-2		0 ~ 5	SM	17.1			
B-2	1	5.0	SC	10.5	1.2	73.1	25.7
B-2	2	10.0	SC	11.2			
B-2	3	15.0	SC	12.6			32.3
B-3		0 ~ 5	SC	21.1			
B-3	1	5.0	SC/CL	5.0			
B-3	2	10.0	SM	6.1			38.4
B-3	3	15.0	SC	13.0	0.2	65.3	34.5
B-4		0 ~ 5	SM	12.2			
B-4	1	5.0	SM	3.4	0.1	77.7	22.2
B-4	2	10.0	SC	6.7			35.1
B-4	3	15.0	CL	20.5			
B-5		0 ~ 5	SC	13.3			
B-5	1	5.0	SC	3.9			
B-5	2	10.0	SP	3.2	0.2	96.7	3.1
B-5	3	15.0	SP	2.9			4.6

UNIFIED SOIL CLASSIFICATION



Sieve No	Dia mm	% Finer
3"	75.0	100.0
2"	50.0	100.0
1.5"	37.5	100.0
1"	25.0	100.0
3/4"	19.00	100.0
1/2"	12.50	100.0
3/8"	9.50	100.0
#4	4.75	99.6
#10	2.00	98.6
#20	0.850	94.4
#40	0.425	82.7
#60	0.250	66.1
#100	0.150	49.6
#140	0.106	38.1
#200	0.075	29.8
Hydrometer Analysis		

% Cobbles	
% Gravel	0.4
% Sand	69.8
% Fines	29.8
D_{60}	
D_{30}	
D_{10}	
C_u	
C_c	

Exploration	Sample No.	Depth (ft)	SYMBOL	Wn (%)	LL	PI	% 5 µm	Description and Classification
B-1	1	5.0	●	15.2				Very dark gray silty Sand (SM)

PROJECT NAME: **UHS Temecula Percolation Testing**

PROJECT NUMBER: **25338344**

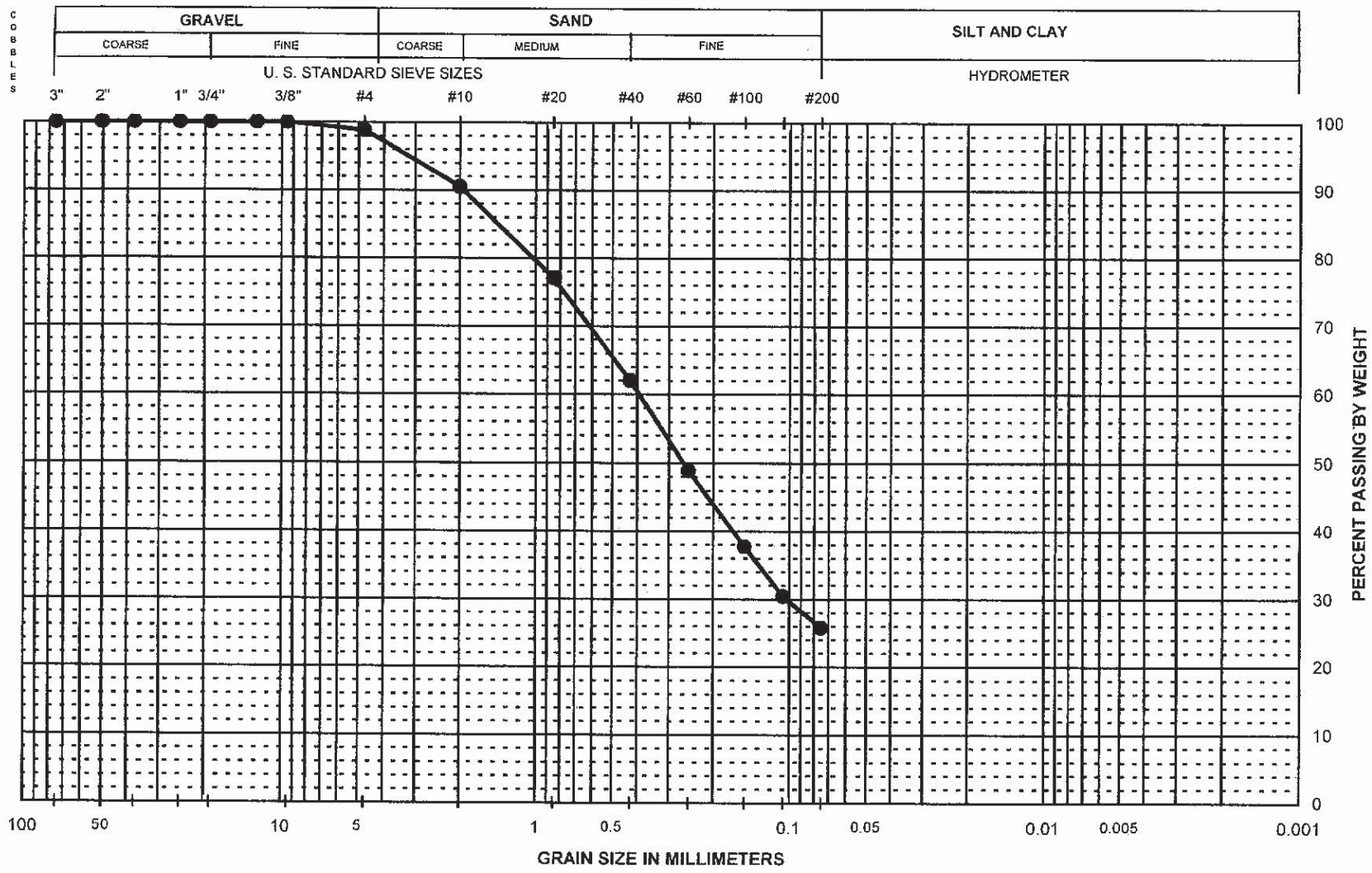
PARTICLE-SIZE DISTRIBUTION CURVES

Figure:

@BCL@6411F56D

URS

UNIFIED SOIL CLASSIFICATION



Hydrometer Analysis	Sieve No.	Dia mm	% Finer
	3"	75.0	100.0
	2"	50.0	100.0
	1.5"	37.5	100.0
	1"	25.0	100.0
	3/4"	19.00	100.0
	1/2"	12.50	100.0
	3/8"	9.50	100.0
	#4	4.75	98.8
	#10	2.00	90.5
	#20	0.850	77.1
	#40	0.425	62.0
	#60	0.250	48.9
	#100	0.150	37.7
	#140	0.106	30.4
	#200	0.075	25.7

% Cobbles	
% Gravel	1.2
% Sand	73.1
% Fines	25.7

D_{60}	
D_{30}	
D_{10}	
C_u	
C_c	

Exploration	Sample No.	Depth (ft)	SYMBOL	Wn (%)	LL	PI	% 5 µm	Description and Classification
B-2	1	5.0	•	10.5				Light olive brown clayey Sand (SC)

PROJECT NAME: UHS Temecula Percolation Testing

PROJECT NUMBER: 25338344

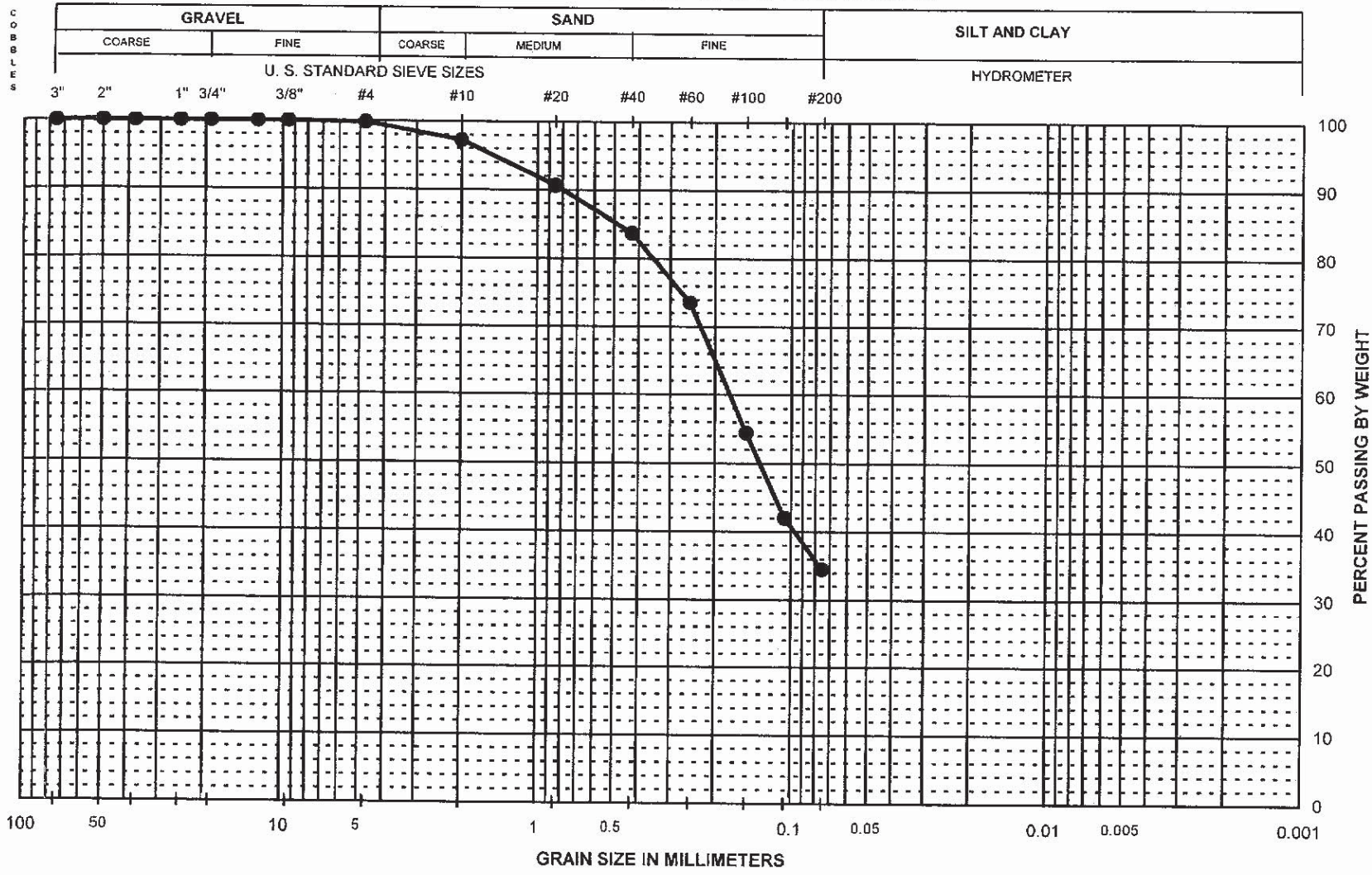
PARTICLE-SIZE DISTRIBUTION CURVES

Figure:

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URS

UNIFIED SOIL CLASSIFICATION



Sieve No.	Dia mm	% Finer
3"	75.0	100.0
2"	50.0	100.0
1.5"	37.5	100.0
1"	25.0	100.0
3/4"	19.00	100.0
1/2"	12.50	100.0
3/8"	9.50	100.0
#4	4.75	99.8
#10	2.00	97.2
#20	0.850	90.6
#40	0.425	83.7
#60	0.250	73.5
#100	0.150	54.4
#140	0.106	42.0
#200	0.075	34.5
Hydrometer Analysis		

% Cobbles	
% Gravel	0.2
% Sand	65.3
% Fines	34.5

D_{60}	
D_{30}	
D_{10}	
C_u	
C_c	

Exploration	Sample No.	Depth (ft)	SYMBOL	Wn (%)	LL	PI	% 5 µm	Description and Classification
B-3	3	15.0	●	13.0				Olive gray clayey Sand (SC)

PROJECT NAME: **UHS Temecula Percolation Testing**

PROJECT NUMBER: **25338344**

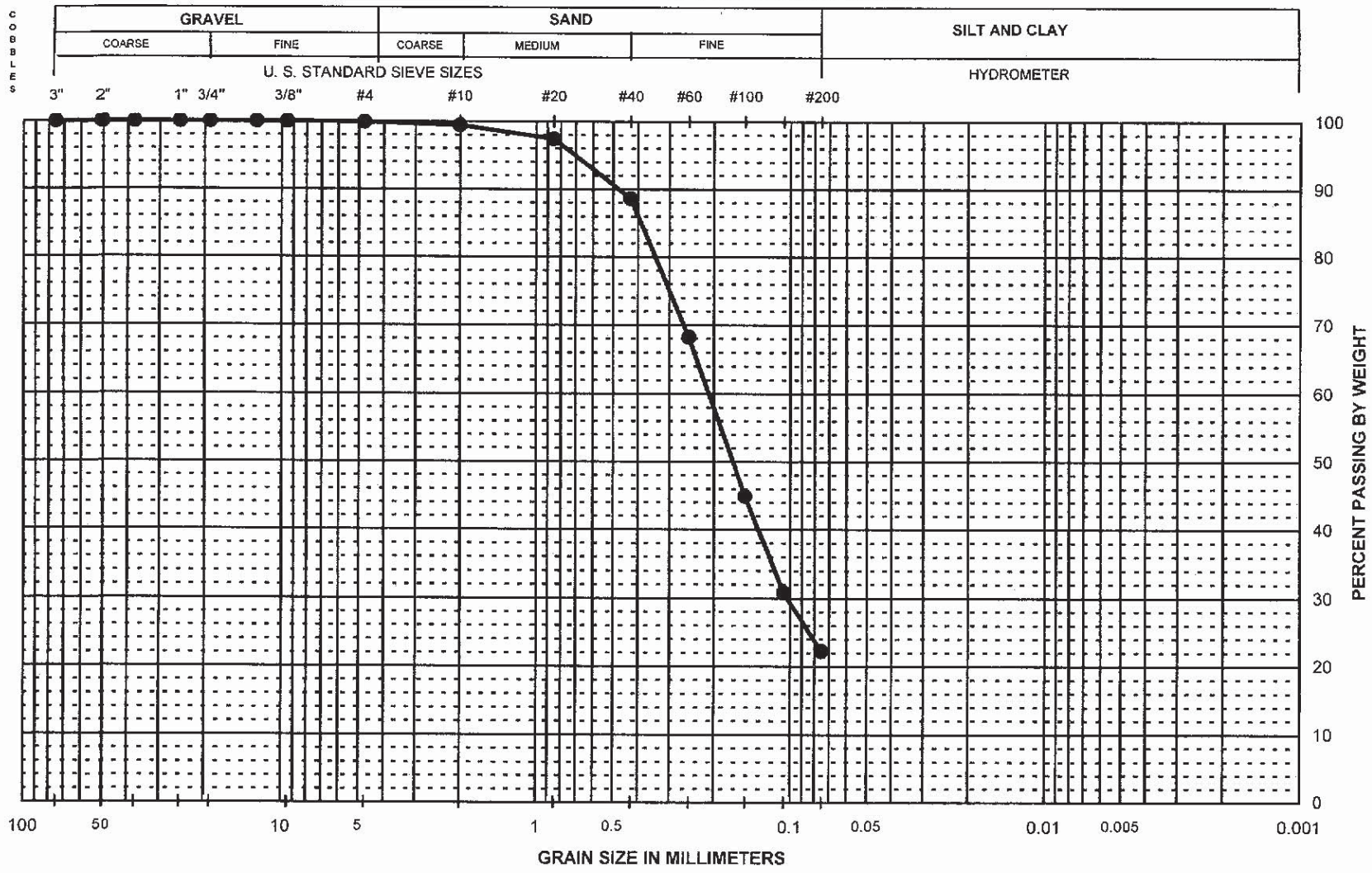
PARTICLE-SIZE DISTRIBUTION CURVES

Figure:

@BCL@64 '85

URS

UNIFIED SOIL CLASSIFICATION



Sieve No.	Dia mm	% Finer
3"	75.0	100.0
2"	50.0	100.0
1.5"	37.5	100.0
1"	25.0	100.0
3/4"	19.00	100.0
1/2"	12.50	100.0
3/8"	9.50	100.0
#4	4.75	99.9
#10	2.00	99.4
#20	0.850	97.4
#40	0.425	88.6
#60	0.250	68.2
#100	0.150	44.9
#140	0.106	30.8
#200	0.075	22.2
Hydrometer Analysis		

% Cobbles	
% Gravel	0.1
% Sand	77.7
% Fines	22.2
D_{60}	
D_{30}	
D_{10}	
C_u	
C_c	

Exploration	Sample No.	Depth (ft)	SYMBOL	Wn (%)	LL	PI	% 5 µm	Description and Classification
B-4	1	5.0	●	3.4				Olive silty Sand (SM)

PROJECT NAME: **UHS Temecula Percolation Testing**

PROJECT NUMBER: **25338344**

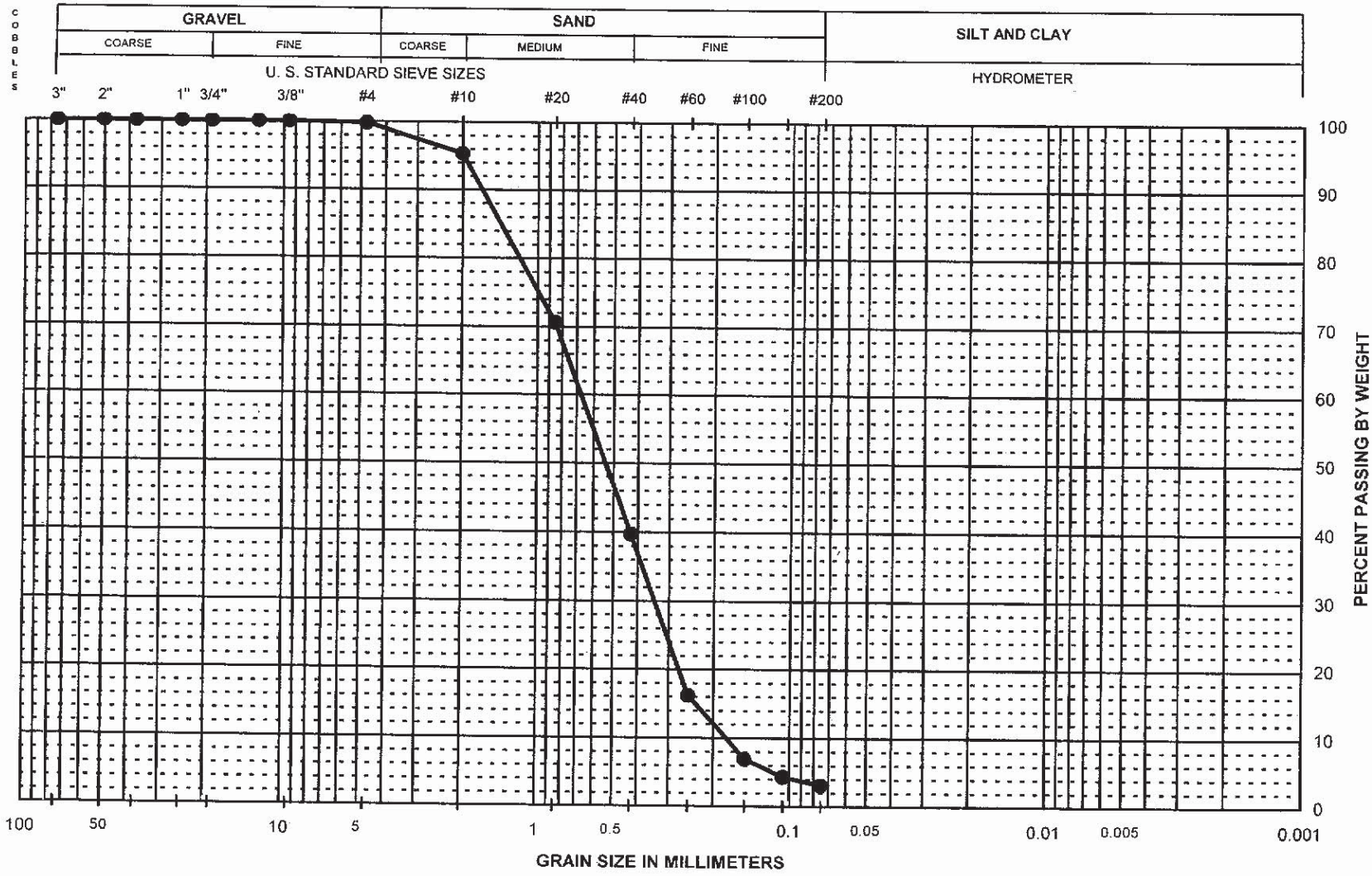
PARTICLE-SIZE DISTRIBUTION CURVES

Figure:

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URS

UNIFIED SOIL CLASSIFICATION



Sieve No.	Dia. mm	% Finer
3"	75.0	100.0
2"	50.0	100.0
1.5"	37.5	100.0
1"	25.0	100.0
3/4"	19.00	100.0
1/2"	12.50	100.0
3/8"	9.50	100.0
#4	4.75	99.8
#10	2.00	95.3
#20	0.850	70.6
#40	0.425	39.7
#60	0.250	16.2
#100	0.150	6.9
#140	0.106	4.3
#200	0.075	3.1
Hydrometer Analysis		

% Cobbles	
% Gravel	0.2
% Sand	96.7
% Fines	3.1
D_{60}	0.670
D_{30}	0.341
D_{10}	0.178
C_u	3.8
C_c	1.0

Exploration	Sample No.	Depth (ft)	SYMBOL	Wn (%)	LL	PI	% 5 µm	Description and Classification
B-5	2	10.0	•	3.2				Gray poorly graded Sand (SP)

PROJECT NAME: **UHS Temecula Percolation Testing**

PROJECT NUMBER: **25338344**

PARTICLE-SIZE DISTRIBUTION CURVES

Figure:

@BCL@6411049F

URS

ATTACHMENT C
INFILTRATION TEST DATA AND CALCULATIONS

Soil Percolation Testing

Project: UHS Temecula Percolation Testing

Project Location: Temecula, CA

Job Number: 25338344

Boring Number: URS-B-1 **Date:** 2/18/2010

Db 14 feet

Ti	Tf	^T	Di	Df	Dt	F	Lave =	Q	Perc Rate in/hr
12:40:00	12:50:00	0:10:00	0.30	11.50	14.00	11.20	8.10	49.78	3.32
13:00:00	13:10:00	0:10:00	0.30	10.20	14.00	9.90	8.75	40.73	2.72
13:40:00	13:50:00	0:10:00	0.30	8.30	14.00	8.00	9.70	29.69	1.98
13:51:00	14:01:00	0:10:00	0.30	9.70	14.00	9.40	9.00	37.60	2.51
14:06:00	14:16:00	0:10:00	0.30	9.30	14.00	9.00	9.20	35.22	2.35
14:21:00	14:31:00	0:10:00	0.30	9.20	14.00	8.90	9.25	34.64	2.31
14:36:00	14:46:00	0:10:00	0.30	8.55	14.00	8.25	9.58	31.02	2.07
14:47:00	14:57:00	0:10:00	0.30	9.45	14.00	9.15	9.13	36.10	2.41
15:01:00	15:11:00	0:10:00	0.30	9.30	14.00	9.00	9.20	35.22	2.35
15:16:00	15:26:00	0:10:00	0.30	9.60	14.00	9.30	9.05	36.99	2.47
15:32:00	15:42:00	0:10:00	0.30	9.60	14.00	9.30	9.05	36.99	2.47
15:48:00	15:58:00	0:10:00	0.30	9.00	14.00	8.70	9.35	33.50	2.23
16:00:00	16:10:00	0:10:00	0.30	8.70	14.00	8.40	9.50	31.83	2.12
16:11:00	16:21:00	0:10:00	0.30	9.70	14.00	9.40	9.00	37.60	2
16:29:00	16:39:00	0:10:00	0.30	10.20	14.00	9.90	8.75	40.73	2.72
16:50:00	17:00:00	0:10:00	0.30	9.70	14.00	9.40	9.00	37.60	2.51
17:05:00	17:15:00	0:10:00	0.30	10.30	14.00	10.00	8.70	41.38	2.76
17:25:00	17:35:00	0:10:00	0.30	10.10	14.00	9.80	8.80	40.09	2.67
				Average Infiltration Rate (for the last 30 min)				**39.69**	**2.6**

Ti - initial time when filling or refilling is completed; hour: minute

Tf - final, end-time of fall, hour: minute

^T - usually .5 or .166 hour

Db - depth to water bottom, feet (measured at start of test)

Di - depth to water surface at Ti

Df - depth to water surface at Tf

Dt - total depth of hole

L_{ave} = [Dt - ((Di+Df)/2)] feet

Q = [F* D * 9/T]/ L_{ave} gal/sq.ft/day

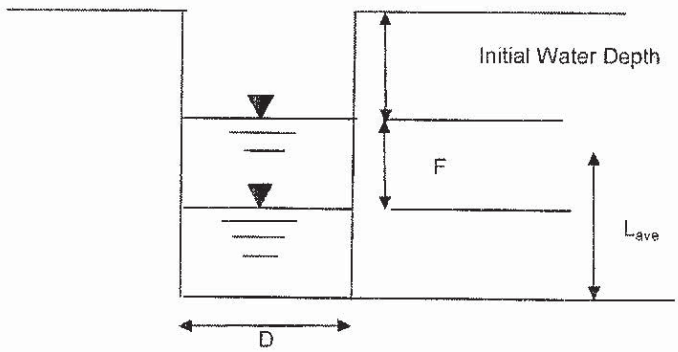
Q = rate in gallons/sq.ft of side wall per day

F= drop during time interval (ft)

D = boring diameter (ft)

T = time interval (hr)

L_{ave} = average wetted depth (ft)



Soil Percolation Testing

Project: UHS Temecula Percolation Testing

Project Location: Temecula, CA

Job Number: 25338344

Boring Number: URS-B-2 **Date:** 2/18/2010

Db 14.4 feet

Ti	Tf	^T	Di	Df	Dt	F	Lave =	Q	Perc Rate in/hr
11:26:00	11:36:00	0:10:00	0.40	5.25	14.40	4.85	11.58	15.08	1.01
11:38:00	11:48:00	0:10:00	0.40	2.50	14.40	2.10	12.95	5.84	0.39
11:51:00	12:21:00	0:30:00	0.40	5.30	14.40	4.90	11.55	5.09	0.34
12:37:00	13:07:00	0:30:00	0.40	6.10	14.40	5.70	11.15	6.13	0.41
13:08:00	13:38:00	0:30:00	0.40	6.50	14.40	6.10	10.95	6.68	0.45
13:40:00	14:10:00	0:30:00	0.40	6.30	14.40	5.90	11.05	6.41	0.43
14:12:00	14:42:00	0:30:00	0.40	6.40	14.40	6.00	11.00	6.55	0.44
14:44:00	15:14:00	0:30:00	0.40	6.60	14.40	6.20	10.90	6.83	0.46
15:15:00	15:45:00	0:30:00	0.40	6.70	14.40	6.30	10.85	6.97	0.46
15:47:00	16:17:00	0:30:00	0.40	6.70	14.40	6.30	10.85	6.97	0.46
16:17:00	16:47:00	0:30:00	0.40	6.80	14.40	6.40	10.80	7.11	0.47
16:49:00	16:59:00	0:10:00	0.40	4.40	14.40	4.00	12.00	12.00	0.80
17:00:00	17:10:00	0:10:00	0.40	4.30	14.40	3.90	12.05	11.65	0.78
17:14:00	17:24:00	0:10:00	0.40	4.30	14.40	3.90	12.05	11.65	0.78
17:25:00	17:35:00	0:10:00	0.40	4.15	14.40	3.75	12.13	11.13	0.74
17:36:00	17:46:00	0:10:00	0.40	4.20	14.40	3.80	12.10	11.31	0.75
17:47:00	17:57:00	0:10:00	0.40	4.21	14.40	3.81	12.10	11.34	0.76
				Average Infiltration Rate (for the last 30 min)				**11.32**	**0.8**

Ti - initial time when filling or refilling is completed; hour: minute

Tf - final, end-time of fall, hour: minute

^T - usually .5 or .166 hour

Db - depth to water bottom, feet (measured at start of test)

Di - depth to water surface at Ti

Df - depth to water surface at Tf

Dt - total depth of hole

L_{ave} = [Dt - ((Di+Df)/2)] feet

Q = [F* D * 9/T]/ L_{ave} gal/sq.ft/day

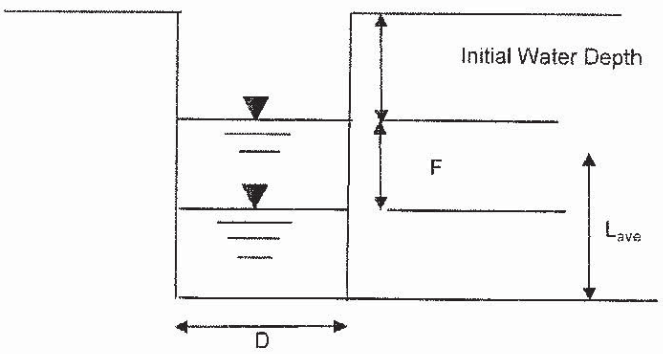
Q = rate in gallons/sq.ft of side wall per day

F= drop during time interval (ft)

D = boring diameter (ft)

T = time interval (hr)

L_{ave} = average wetted depth (ft)



Soil Percolation Testing

Project: UHS Temecula Percolation Testing

Project Location: Temecula, CA

Job Number: 25338344

Boring Number: URS-B-3 **Date:** 2/18/2010

Db 11.4 feet

Ti	Tf	^T	Di	Df	Dt	F	Lave =	Q	Perc Rate in/hr
12:00:00	12:10:00	0:10:00	0.75	2.95	11.40	2.20	9.55	8.29	0.55
12:10:00	12:20:00	0:10:00	2.95	4.58	11.40	1.63	7.64	7.69	0.51
12:20:00	12:30:00	0:10:00	4.58	5.28	11.40	0.70	6.47	3.89	0.26
12:30:00	12:40:00	0:10:00	5.28	5.37	11.55	0.09	6.23	0.52	0.03
12:40:00	12:50:00	0:10:00	5.37	5.46	10.85	0.09	5.44	0.60	0.04
12:50:00	13:00:00	0:10:00	5.34	5.45	10.80	0.11	5.41	0.73	0.05
13:00:00	13:30:00	0:30:00	5.18	5.45	10.55	0.27	5.24	0.62	0.04
13:30:00	14:00:00	0:30:00	5.18	5.70	10.55	0.52	5.11	1.22	0.08
14:09:00	14:39:00	0:30:00	5.10	5.69	10.55	0.59	5.16	1.37	0.09
14:39:00	15:09:00	0:30:00	5.69	6.20	10.40	0.51	4.46	1.37	0.09
15:09:00	15:39:00	0:30:00	6.20	6.69	10.28	0.49	3.84	1.53	0.10
15:39:00	16:09:00	0:30:00	6.69	7.13	10.28	0.44	3.37	1.57	0.10
16:09:00	16:39:00	0:30:00	7.13	7.54	10.20	0.41	2.87	1.72	0.11
16:39:00	16:49:00	0:10:00	7.54	7.62	10.20	0.08	2.62	1.10	0
17:00:00	17:10:00	0:10:00	7.62	7.70	10.20	0.08	2.54	1.13	0.08
17:10:00	17:20:00	0:10:00	7.70	7.78	10.20	0.08	2.46	1.17	0.08
17:20:00	17:30:00	0:10:00	7.78	7.85	10.20	0.07	2.39	1.06	0.07
17:33:00	17:43:00	0:10:00	7.38	7.56	10.20	0.18	2.73	2.37	0.16
17:43:00	17:53:00	0:10:00	7.56	7.74	10.20	0.18	2.55	2.54	0.17
				Average Infiltration Rate (for the last 30 min)				**1.53**	**0.1**

Ti - initial time when filling or refilling is completed; hour: minute

Tf - final, end-time of fall, hour: minute

^T - usually .5 or .166 hour

Db - depth to water bottom, feet (measured at start of test)

Di - depth to water surface at Ti

Df - depth to water surface at Tf

Dt - total depth of hole

L_{ave} = [Dt - ((Di+Df)/2)] feet

Q = [F* D * 9/T]/ L_{ave} gal/sq.ft/day

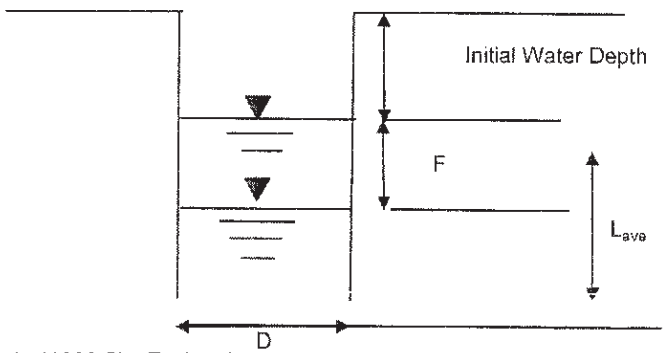
Q = rate in gallons/sq.ft of side wall per day

F= drop during time interval (ft)

D = boring diameter (ft)

T = time interval (hr)

L_{ave} = average wetted depth (ft)



Soil Percolation Testing

Project: UHS Temecula Percolation Testing

Project Location: Temecula, CA

Job Number: 25338344

Boring Number: URS-B-4 **Date:** 2/18/2010

Db 14.4 feet

Ti	Tf	^T	Di	Df	Dt	F	Lave =	Q	Perc Rate in/hr
12:05:00	12:15:00	0:10:00	1.00	5.79	14.40	4.79	11.01	15.67	1.04
12:15:00	12:25:00	0:10:00	5.79	7.05	14.40	1.26	7.98	5.68	0.38
12:27:00	12:37:00	0:10:00	4.55	6.45	14.40	1.90	8.90	7.69	0.51
12:37:00	12:47:00	0:10:00	6.45	7.40	14.40	0.95	7.48	4.58	0.31
12:47:00	12:57:00	0:10:00	7.40	8.27	13.50	0.87	5.67	5.53	0.37
12:57:00	13:07:00	0:10:00	8.27	9.09	13.50	0.82	4.82	6.12	0.41
13:15:00	13:45:00	0:30:00	5.15	7.88	13.35	2.73	6.84	4.79	0.32
13:45:00	14:15:00	0:30:00	7.88	9.70	13.35	1.82	4.56	4.79	0.32
14:15:00	14:45:00	0:30:00	9.70	10.69	13.30	0.99	3.11	3.83	0.26
14:47:00	15:17:00	0:30:00	4.49	8.25	13.20	3.76	6.83	6.61	0.44
15:17:00	15:47:00	0:30:00	8.25	10.01	13.20	1.76	4.07	5.19	0.35
15:51:00	16:01:00	0:10:00	4.20	5.70	13.20	1.50	8.25	6.55	0.44
16:01:00	16:11:00	0:10:00	5.70	6.70	13.20	1.00	7.00	5.14	0.34
16:11:00	16:21:00	0:10:00	6.70	7.67	13.20	0.97	6.02	5.81	0.39
16:21:00	16:31:00	0:10:00	7.67	8.59	13.20	0.92	5.07	6.53	0.44
16:31:00	16:41:00	0:10:00	8.59	9.44	13.20	0.85	4.19	7.31	0.49
16:41:00	16:51:00	0:10:00	9.44	10.25	13.20	0.81	3.36	8.69	0.58
16:57:00	17:07:00	0:10:00	5.00	6.60	13.20	1.60	7.40	7.78	0.52
17:07:00	17:17:00	0:10:00	6.60	7.56	13.20	0.96	6.12	5.65	0.38
17:17:00	17:27:00	0:10:00	7.56	8.48	13.20	0.92	5.18	6.39	0.4
				Average Infiltration Rate (for the last 30 min)				**6.61**	**0.4**

Ti - initial time when filling or refilling is completed: hour: minute

Tf - final, end-time of fall, hour: minute

^T - usually .5 or .166 hour

Db - depth to water bottom, feet (measured at start of test)

Di - depth to water surface at Ti

Df - depth to water surface at Tf

Dt - total depth of hole

L_{ave} = [Dt - ((Di+Df)/2)] feet

Q = [F* D * 9/T]/ L_{ave} gal/sq.ft/day

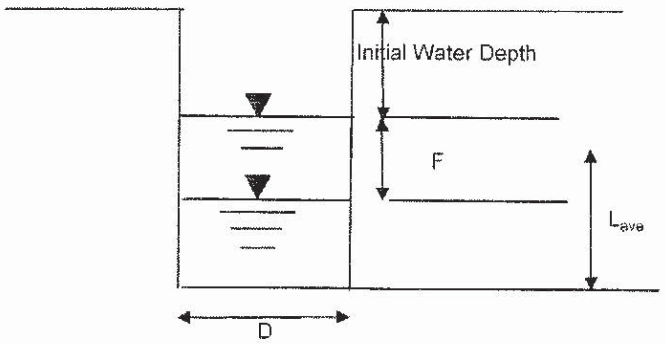
Q = rate in gallons/sq.ft of side wall per day

F= drop during time interval (ft)

D = boring diameter (ft)

T = time interval (hr)

L_{ave} = average wetted depth (ft)



Soil Percolation Testing

Project: UHS Temecula Percolation Testing

Project Location: Temecula, CA

Job Number: 25338344

Boring Number: URS-B-5 **Date:** 2/18/2010

Db 14.7 feet

Ti	Tf	^T	Di	Df	Dt	F	Lave =	Q	Perc Rate in/hr
14:16:00	14:26:00	0:10:00	0.50	13.30	14.70	12.80	7.80	59.08	3.94
14:28:00	14:38:00	0:10:00	0.50	13.56	14.70	13.06	7.67	61.30	4.09
14:50:00	15:00:00	0:10:00	0.50	12.50	14.70	12.00	8.20	52.68	3.51
15:08:00	15:18:00	0:10:00	0.50	12.10	14.70	11.60	8.40	49.71	3.31
15:27:00	15:37:00	0:10:00	0.50	12.75	14.70	12.25	8.08	54.61	3.64
15:44:00	15:54:00	0:10:00	0.50	11.30	14.70	10.80	8.80	44.18	2.95
15:55:00	16:05:00	0:10:00	0.50	11.40	14.70	10.90	8.75	44.85	2.99
16:06:00	16:16:00	0:10:00	0.50	11.30	14.70	10.80	8.80	44.18	2.95
16:20:00	16:30:00	0:10:00	0.50	11.60	14.00	11.10	7.95	50.26	3.35
16:45:00	16:55:00	0:10:00	0.50	11.90	14.00	11.40	7.80	52.62	3.51
16:57:00	17:07:00	0:10:00	0.50	11.70	14.00	11.20	7.90	51.04	3.40
17:10:00	17:20:00	0:10:00	0.50	11.45	14.00	10.95	8.03	49.12	3.27
17:35:00	17:45:00	0:10:00	0.50	11.70	14.00	11.20	7.90	51.04	3.40
				Average Infiltration Rate (for the last 30 min)				50.40	3.4

Ti - initial time when filling or refilling is completed; hour: minute

Tf - final, end-time of fall, hour: minute

^T - usually .5 or .166 hour

Db - depth to water bottom, feet (measured at start of test)

Di - depth to water surface at Ti

Df - depth to water surface at Tf

Dt - total depth of hole

L_{ave} = [Dt - ((Di+Df)/2)] feet

Q = [F* D * 9/T]/ L_{ave} gal/sq.ft/day

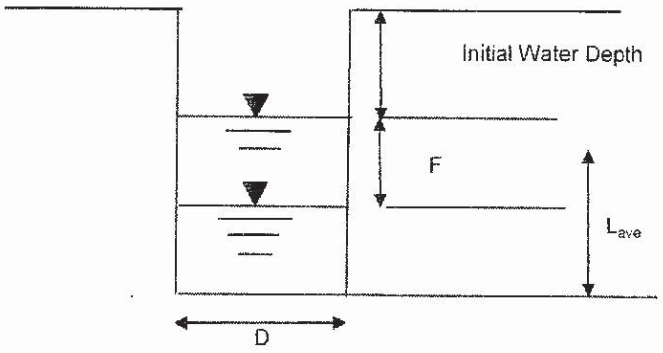
Q = rate in gallons/sq.ft of side wall per day

F= drop during time interval (ft)

D = boring diameter (ft)

T = time interval (hr)

L_{ave} = average wetted depth (ft)



Appendix F

Treatment Control BMP Sizing Calculations and Design Details

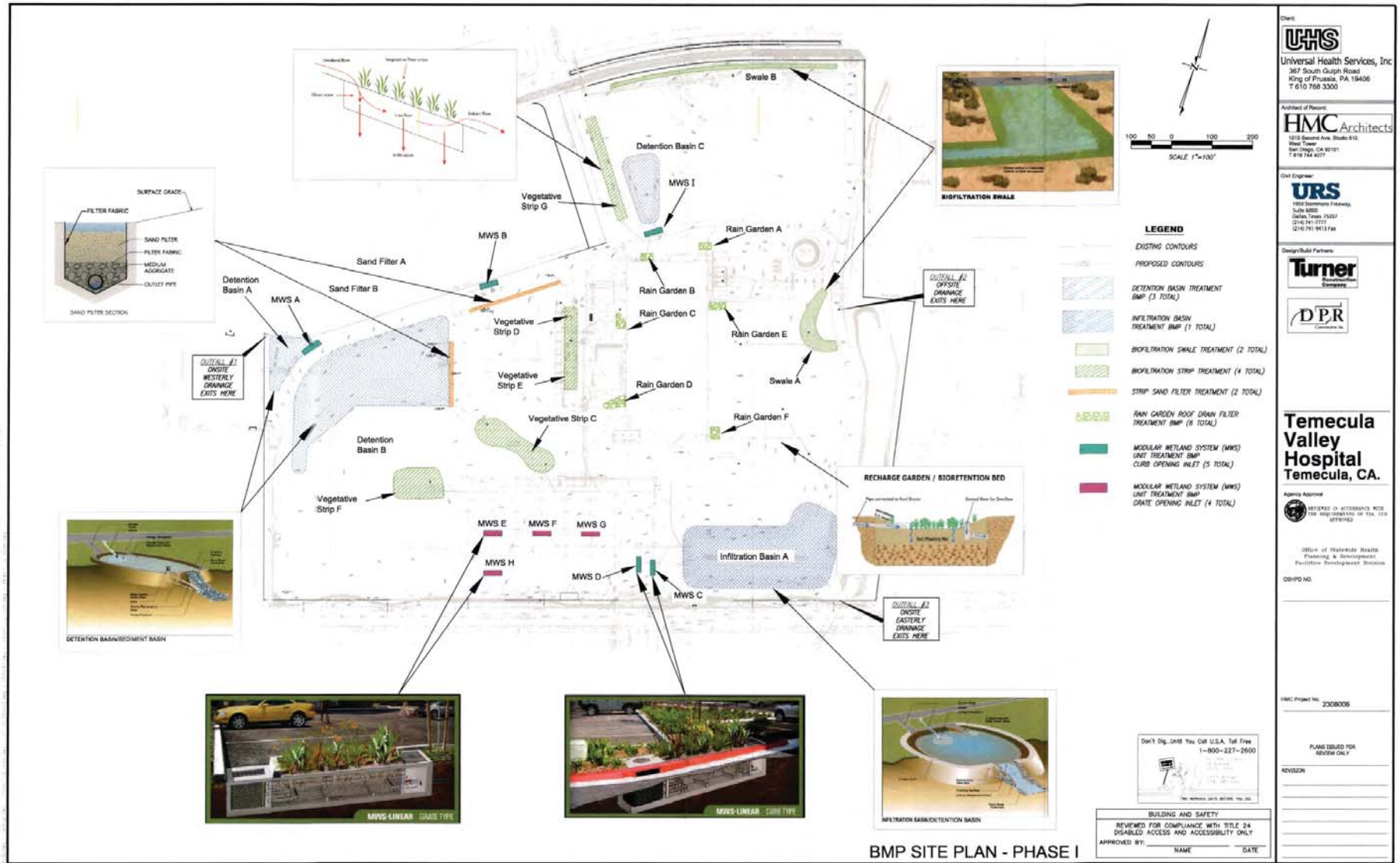
June 2011

UHS Temecula Medical Center

BMP Summary Spreadsheet

Phase 1
Hydrologic Subarea

Outfall #1 West	Title	BMP
W-1	MWS B	Modular Wetlands Unit - 14' curb
W-2	Sand Filter A	Sand Filter Strip
W-9	MWS A	Modular Wetlands Unit - 14' curb
W-10	Detention Basin A	Detention Basin
W-11	Sand Filter B	Sand Filter Strip
W-13	Strip C	Vegetative Strip
W-15	Detention Basin B	Detention Basin
Outfall #3 East		
E-4	MWS E	Modular Wetlands Unit - 14' curb
E-5	Basin A	Infiltration Basin
E-6	Rain Garden A	Rain Garden
E-7	Rain Garden B	Rain Garden
E-8	Strip D	Vegetative Strip
E-9	Rain Garden C	Rain Garden
E-10	Rain Garden D	Rain Garden
E-11	Rain Garden E	Rain Garden
E-14	Strip E	Biofiltration Strip
E-15	Rain Garden F	Rain Garden
E-21	Strip F	Vegetative Strip
E-22	MWS G	Modular Wetlands Unit - 22' grate
E-23	MWS C	Modular Wetlands Unit - 14' UG Curb
E-28	MWS D	Modular Wetlands Unit - 14' Curb
E-32	Detention Basin C	Detention Basin
E- 33	Strip G & Swale B	Vegetative Strip / Grass swale
E-34	Basin A	Infiltration Basin
E-35	Swale A	Grass Swale
E-36	Basin A	Infiltration Basin
E-37	Basin A	Infiltration Basin
E-38	MWS E	Modular Wetlands Unit - 22' grate
E-39	MWS F	Modular Wetlands Unit - 14' grate
E-40	MWS H	Modular Wetlands Unit - 14' grate
E-41	Strip C	Vegetative Strip
E-42	Basin A	Infiltration Basin



BMP SITE PLAN - PHASE I

Client:
Universal Health Services, Inc
367 South Gulph Road
King of Prussia, PA 19406
T 610 768 3300

Architect of Record:
HMC Architects
1010 Second Ave. Studio 810
West Tower
San Diego, CA 92101
T 619 744 4077

Civil Engineer:
URS
1950 Stemmons Freeway,
Suite 6000
Dallas, Texas 75207
(214) 741-7777
(214) 741-9413 Fax

Design/Build Partners:
Turner Construction Company
DPR Construction Inc.

Temecula Valley Hospital
Temecula, CA.

Agency Approval
REVIEWED IN ACCORDANCE WITH THE REQUIREMENTS OF THE 1998 SFPP/1982
Office of Statewide Health Planning & Development Facilities Development Division
OSHPD NO.

HMC Project No. 2308006

PLANS ISSUED FOR REVIEW ONLY

REVISION

Don't Dig...Until You Call U.S.A. Toll Free 1-800-227-2600

BUILDING AND SAFETY
REVIEWED FOR COMPLIANCE WITH TITLE 24 DISABLED ACCESS AND ACCESSIBILITY ONLY
APPROVED BY: _____ NAME _____ DATE

CONSTRUCTION RECORD	DATE	BY	REVISIONS	ACC'D	DATE	BENCH MARK	SCALE
Contractor						ELEVATION: 1305.487' DATE: 8-31-93	HORIZONTAL
Inspector							VERTICAL
Date Completed							

SEAL:
PROGRESS PRINT
THIS DOCUMENT MAY NOT BE USED FOR CONSTRUCTION. RELEASED UNDER AUTHORITY OF: MARGIE M DE LAURELL, P.E. CALIFORNIA P.E. #C-59448

Designed By	Drawn By	Checked By
SEL		MDL

Plans Prepared Under Supervision Of
MARGIE MARIE DE LAURELL
R.C.E. NO. C59448
DATE 6/28/11

RECOMMENDED BY: _____ DATE: _____
ACCEPTED BY: _____ DATE: _____
GREG BUTLER
DIRECTOR OF PUBLIC WORKS/CITY ENGINEER
R.C.E. NO. 47109

CITY OF TEMECULA DEPARTMENT OF PUBLIC WORKS

TEMECULA VALLEY HOSPITAL
PHASE I BMP PLAN
PM 32468/PA10-0194

Drawing No. **WQMP-1**
Sheet 1 OF 7

UHS Temecula Medical Center

BMP Summary Spreadsheet

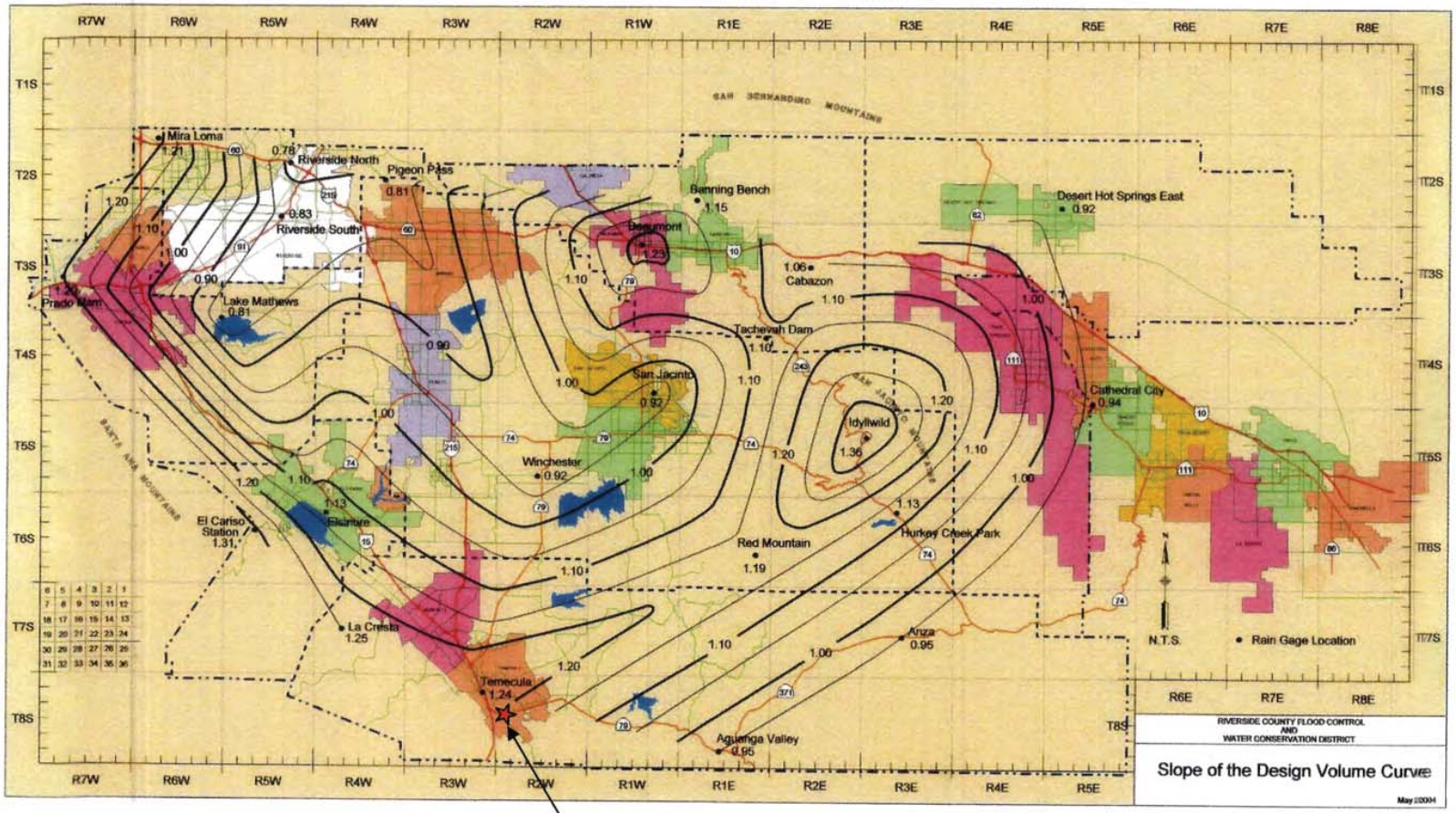
Ultimate
Hydrologic Subarea
* = To be calculated at time of ultimate BMP submittal package

Outfall #1 West		Title	BMP
W-1		MWS B	Modular Wetlands Unit - 14' curb
W-2		Sand Filter A	Sand Filter Strip
W-3	*	Detention Basin B/ Sand filter C	Detention Basin/ Sand Filter Strip
W-4	*	Detention Basin C/ Sand filter D	Detention Basin/ Sand Filter Strip
W-5	*	Detention Basin D/ Sand Filter E	Detention Basin/ Sand Filter Strip
W-6	*	Detention Basin E/ Sand Filter F	Detention Basin/ Sand Filter Strip
W-7	*	Detention Basin F/ San Filter G	Detention Basin/ Sand Filter Strip
W-9		MWS A	Modular Wetlands Unit - 14' curb
W-10		Detention Basin A	Detention Basin
W-11		Sand Filter B	Sand Filter Strip
W-12		Detention Basin C	Detention Basin
W-13		Detention Basin C	Detention Basin

Outfall #3 East

E-1	*	Swale B/detention basin C	Grass Swale/Detention basin
E-2	*	Detention basin C & sand filter I	Detention Basin/ sand strip
E-4		MSW E	Modular Wetlands Unit - 14' Curb
E-5		Basin A	Infiltration Basin
E-6		Rain Garden A	Rain Garden
E-7		Rain Garden B	Rain Garden
E-8		Strip D	Vegetative Strip
E-9		Rain Garden C	Rain Garden
E-10		Rain Garden D	Rain Garden
E-11		Rain Garden E	Rain Garden
E-12	*	Chamber/Rain Garden	Infiltration Chamber/Rain Garden

E-13		Swale A	Vegetative Swale
E-14		Strip E	Vegetative Strip
E-15		Rain Garden F	Rain Garden
E-16	*	Chamber /Rain Garden	Infiltration Chamber/ Rain Garden
E-17	*	Chamber	Infiltration Chamber
E-18	*	Chamber	infiltration Chamber
E-19	*	Chamber	Infiltration Chamber
E-20		MWS F	Modular Wetlands Unit - 14' grate
E-21	*	Chamber	Infiltration Chamber
E-22		MWS G	Modular Wetlands Unit - 22' grate
E-23		MWS C	Modular Wetlands Unit - 14' UG Curb
E-24	*	Chamber	Infiltration Chamber
E-25	*	Chamber	Infiltration Chamber
E-26		MWS E	Modular Wetlands Unit - 22' grate
E-27		MWS H	Modular Wetlands Unit - 14' grate
E-28		MWS D	Modular Wetlands Unit - 14' Curb
E-29	*	Chamber	Infiltration Chamber
E-30	*	Chamber	Infiltration Chamber
E-31	*	Chamber	Infiltration Chamber



Project Site

Worksheet 1

Design Procedure for BMP Design Volume

85th percentile runoff event

Designer: CYNTHIA GABALDON
Company: URS CORP
Date: 12/28/10
Project: UHS Temecula
Location: INFILTRATION BASIN - SE CORNER. "BASIN A"

1. Create Unit Storage Volume Graph a. Site location (Township, Range, and Section). b. Slope value from the Design Volume Curve in **Appendix A**. c. Plot this value on the Unit Storage Volume Graph shown on **Figure 2.** d. Draw a straight line form this point to the origin, to create the graph	T 8S &R 2W Section 18	*(1)*
	Slope = 1.20	*(2)*
	Is this graph attached? Yes ☑ No ☐	
2. Determine Runoff Coefficient a. Determine total impervious area	$A_{impervious}$ = _____ acres	*(5)*
b. Determine total tributary area	A_{total} = 6.23 acres	*(6)*
c. Determine Impervious fraction i = *(5)* / *(6)*	i = _____	*(7)*
d. Use *(7)* in **Figure 1** to find Runoff OR $C = .858i^3 - .78i^2 + .774i + .04$	C = 0.89	*(8)*
3. Determine 85% Unit Storage Volume a. Use *(8)* in **Figure 2** Draw a Vertical line from *(8)* to the graph, then a Horizontal line to the desired V_u value.	V_u = 1.06 in-acre / acre	*(9)*
4. Determine Design Storage Volume a. V_{BMP} = *(9)* x *(6)* [in- acres]	V_{BMP} = 6.6 in-acre	*(10)*
b. V_{BMP} = *(10)* / 12 [ft- acres]	V_{BMP} = 0.55 ft-acre	*(11)*
c. V_{BMP} = *(11)* x 43560 [ft^3]	V_{BMP} = 23,958 ft^3	*(12)*

Notes: Subareas E-5, E-34, E-36, E-37, E-42

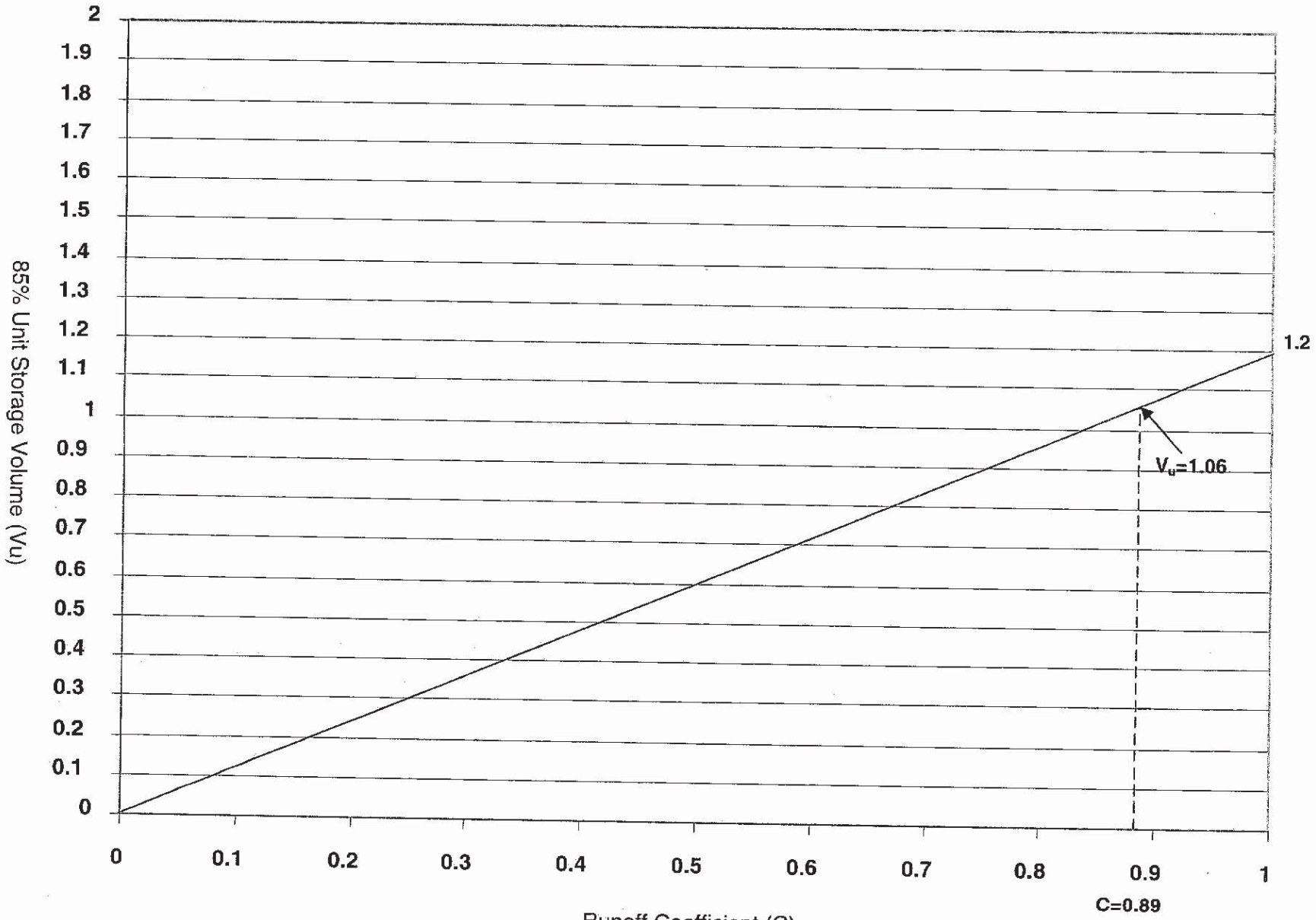


Figure 2 Unit Storage Volume Graph

Worksheet 4

Design Procedure Form for Infiltration Basin

Designer: Cynthia Gabaldon
Company: URS Corporation
Date: December 28, 2010
Project: UHS Temecula
Location: Southeast Corner of Site

1. Determine Design Storage Volume (Use Worksheet 1) a. Total Tributary Area (maximum 50) b. Design Storage Volume, V_{BMP}	A_{total} = 6.23 acres V_{BMP} = 23,958 ft^3
2. Maximum Allowable Depth (D_m) a. Site infiltration rate (I) b. Minimum drawdown time (48 hrs) c. Safety factor (s) d. D_m = [(t) x (I)]/[12s]	I = 30 in/hr t = 48 hrs s = 2 D_m = 0.4 ft
3. Basin Surface Area $A_m = V_{BMP} / D_m$	A_m = 62,393 ft^2
4. Vegetation (check type used or describe "other")	☑ Native Grasses ☐ Irrigated Turf Grass ☐ Other

Notes:

Worksheet 1

Design Procedure for BMP Design Volume

85th percentile runoff event

Designer: MARGIE DE LAURELL / CYNTHIA GARLOW
Company: URS CORP
Date: 12/28/10
Project: UHS TEMECULA
Location: DETENTION BASIN "A" (W-10)

1. Create Unit Storage Volume Graph a. Site location (Township, Range, and Section). b. Slope value from the Design Volume Curve in **Appendix A.** c. Plot this value on the Unit Storage Volume Graph shown on **Figure 2.** d. Draw a straight line form this point to the origin, to create the graph	T 8S &R 2W Section 18 *(1)* Slope = 1.2 *(2)* Is this graph attached? Yes ☑ No ☐
2. Determine Runoff Coefficient a. Determine total impervious area b. Determine total tributary area c. Determine Impervious fraction i = *(5)* / *(6)* d. Use *(7)* in **Figure 1** to find Runoff OR C = $.858i^3 - .78i^2 + .774i + .04$	$A_{impervious}$ = _____ acres *(5)* A_{total} = .28 acres *(6)* i = _____ *(7)* C = .89 *(8)*
3. Determine 85% Unit Storage Volume a. Use *(8)* in **Figure 2** Draw a Vertical line from *(8)* to the graph, then a Horizontal line to the desired V_u value.	V_u = 1.06 in-acre / acre *(9)*
4. Determine Design Storage Volume a. V_{BMP} = *(9)* x *(6)* [in- acres] b. V_{BMP} = *(10)* / 12 [ft- acres] c. V_{BMP} = *(11)* x 43560 [ft^3]	V_{BMP} = .2968 in-acre *(10)* V_{BMP} = .0247 ft-acre *(11)* V_{BMP} = 1077 ft^3 *(12)*

Notes: W-10

Worksheet 3

Design Procedure Form for Extended Detention Basin

Designer: MARGIE DE LAUREL/ CYNTHIA GABALDON
Company: URS CORP
Date: 12/28/10
Project: VHS TEMECULA
Location: DETENTION BASIN "A" (W-10)

1. Determine Design Volume (Use Worksheet 1) a. Total Tributary Area (minimum 5 ac.) b. Design Volume, V_{BMP}	A_{total} = .28 acres V_{BMP} = 1077 ft^3
2. Basin Length to Width Ratio (2:1 min.)	Ratio = _____ L:W
3. Two-Stage Design a. Overall Design 1) Depth (3.5' min.) 2) Width (30' min.) 3) Length (60' min.) 4) Volume (must be ≥ V_{BMP}) b. Upper Stage 1) Depth (2' min.) 2) Bottom Slope (2% to low flow channel recommended) c. Bottom Stage 1) Depth (1.5' to 3') 2) Length 3) Volume (10 to 25% of V_{BMP})	Depth = _____ ft Width = 30 ft Length = 25 ft Volume = 1875 ft^3 Depth = _____ ft Slope = _____ % Depth = _____ ft Length = _____ ft Volume = _____ ft^3
4. Forebay Design a. Forebay Volume (5 to 10% of V_{BMP}) b. Outlet pipe drainage time (≅ 45 min)	Volume = _____ ft^3 Drain time = _____ minutes
5. Low-flow Channel a. Depth (9" minimum) b. Flow Capacity (2 * Forebay Q_{OUT})	Depth = _____ ft $Q_{Low\ Flow}$ = _____ cfs
6. Trash Rack or Gravel Pack (check one)	Trash Rack _____ Gravel Pack ✓

BASIN "A" (W-10)

7. Basin Outlet a. Outlet type (check one) b. Orifice Area c. Orifice Type d. Maximum Depth of water above bottom orifice e. Length of time for 50% V_{BMP} drainage (24 hour minimum) f. Length of time for 100% V_{BMP} drainage (between 48 and 72 hours) g. Attached Documents (all required) 1) Stage vs. Discharge 2) Stage vs. Volume 3) Inflow Hydrograph 4) Basin Routing	Single orifice ✓ Multi-orifice plate ____ Perforated Pipe ____ Other ____ Area = ____ ft^2 Type ____ Depth = ____ ft Time 50% = 24 hrs Time 100% = 72 hrs OUTFALL = 14.4 cfs Attached Documents (check) 1) ____ 2) ____ 3) ____ 4) ____
8. Increased Runoff (optional) Is this basin also mitigating increased runoff? Attached Documents (all required) for 2, 5, & 10-year storms: 1) Stage vs. Discharge 2) Stage vs. Volume 3) Inflow Hydrograph 4) Basin Routing	Yes ✓ No ____ (if No, skip to #9) SEE HYDROLOGY REPORT Attached Documents (check) 1) ____ 2) ____ 3) ____ 4) ____
9. Vegetation (check type)	✓ Native Grasses ____ Irrigated Turf ____ Other ____
10. Embankment N/A a. Interior slope (4:1 max.) b. Exterior slope (3:1 max.)	Interior Slope = ____ % Exterior Slope = ____ %
11. Access N/A a. Slope (10% max.) b. Width (16 feet min.)	Slope = ____ % Width = ____ ft

Worksheet 1

Design Procedure for BMP Design Volume

85th percentile runoff event

Designer: MARGIE DE LAUREL / CYNTHIA BABALOON
Company: URS CORP
Date: 12/28/10
Project: VHS TEMECULA.
Location: DETENTION BASIN "B" (W-15)

1. Create Unit Storage Volume Graph a. Site location (Township, Range, and Section). b. Slope value from the Design Volume Curve in **Appendix A.** c. Plot this value on the Unit Storage Volume Graph shown on **Figure 2.** d. Draw a straight line form this point to the origin, to create the graph	T 8S &R 2W Section 18 *(1)* Slope = 1.20 *(2)* Is this graph attached? Yes ☑ No ☐
2. Determine Runoff Coefficient a. Determine total impervious area b. Determine total tributary area c. Determine Impervious fraction i = *(5)* / *(6)* d. Use *(7)* in **Figure 1** to find Runoff OR $C = .858i^3 - .78i^2 + .774i + .04$	$A_{impervious}$ = _____ acres *(5)* A_{total} = 4.85 acres *(6)* i = _____ *(7)* C = .85 *(8)*
3. Determine 85% Unit Storage Volume a. Use *(8)* in **Figure 2** Draw a Vertical line from *(8)* to the graph, then a Horizontal line to the desired V_u value.	V_u = 1.06 in-acre / acre *(9)*
4. Determine Design Storage Volume a. V_{BMP} = *(9)* x *(6)* [in- acres] b. V_{BMP} = *(10)* / 12 [ft- acres] c. V_{BMP} = *(11)* x 43560 [ft^3]	V_{BMP} = 5.141 in-acre *(10)* V_{BMP} = .4284 ft-acre *(11)* V_{BMP} = 18,661 ft^3 *(12)*

Notes: _____

Worksheet 3

Design Procedure Form for Extended Detention Basin

Designer: MARGIE DE LAURELL / CYNTHIA GABALDON
Company: URS CORP
Date: 12/28/10
Project: UHS TEMECULA
Location: DETENTION BASIN "B" (W-15)

1. Determine Design Volume (Use Worksheet 1) a. Total Tributary Area (minimum 5 ac.) b. Design Volume, V_{BMP}	A_{total} = 4.86 acres V_{BMP} = 18661 ft^3
2. Basin Length to Width Ratio (2:1 min.)	Ratio = 2:1 L:W
3. Two-Stage Design a. Overall Design 1) Depth (3.5' min.) 2) Width (30' min.) 3) Length (60' min.) 4) Volume (must be ≥ V_{BMP}) b. Upper Stage 1) Depth (2' min.) 2) Bottom Slope (2% to low flow channel recommended) c. Bottom Stage 1) Depth (1.5' to 3') 2) Length 3) Volume (10 to 25% of V_{BMP})	Depth = 5.0 ft Width = 75.0 ft Length = 125 ft Volume = 23,438 ft^3 Depth = _____ ft Slope = _____ % Depth = _____ ft Length = _____ ft Volume = _____ ft^3
4. Forebay Design a. Forebay Volume (5 to 10% of V_{BMP}) b. Outlet pipe drainage time (≅ 45 min)	Volume = _____ ft^3 Drain time = _____ minutes
5. Low-flow Channel a. Depth (9" minimum) b. Flow Capacity (2 * Forebay Q_{OUT})	Depth = _____ ft $Q_{Low\ Flow}$ = _____ cfs
6. Trash Rack or Gravel Pack (check one)	Trash Rack _____ Gravel Pack ✓

BASIN "B" (W-15)

7. Basin Outlet a. Outlet type (check one)	Single orifice ✓ Multi-orifice plate ____ Perforated Pipe ____ Other ____
b. Orifice Area c. Orifice Type d. Maximum Depth of water above bottom orifice e. Length of time for 50% V_{BMP} drainage (24 hour minimum) f. Length of time for 100% V_{BMP} drainage (between 48 and 72 hours) g. Attached Documents (all required) 1) Stage vs. Discharge 2) Stage vs. Volume 3) Inflow Hydrograph 4) Basin Routing	Area = ____ ft^2 Type ____ Depth = ____ ft Time 50% = 24 hrs Time 100% = 72 hrs Attached Documents (check) 1) ____ 2) ____ 3) ____ 4) ____
8. Increased Runoff (optional) Is this basin also mitigating increased runoff? Attached Documents (all required) for 2, 5, & 10-year storms: 1) Stage vs. Discharge 2) Stage vs. Volume 3) Inflow Hydrograph 4) Basin Routing	Yes ✓ No ____ (if No, skip to #9) SEE HYDROLOGY REPORT Attached Documents (check) 1) ____ 2) ____ 3) ____ 4) ____
9. Vegetation (check type)	✓ Native Grasses ____ Irrigated Turf ____ Other ____
10. Embankment N/A a. Interior slope (4:1 max.) b. Exterior slope (3:1 max.)	Interior Slope = ____ % Exterior Slope = ____ %
11. Access N/A a. Slope (10% max.) b. Width (16 feet min.)	Slope = ____ % Width = ____ ft

Worksheet 1

Design Procedure for BMP Design Volume

85th percentile runoff event

Designer: MARGIE DE LAURELL / CYNTHIA CABALLERO
Company: URS CORP.
Date: 12/22/10
Project: UHS TEMECULA
Location: DETENTION BASIN "C" (E-32)

1. Create Unit Storage Volume Graph a. Site location (Township, Range, and Section). b. Slope value from the Design Volume Curve in **Appendix A**. c. Plot this value on the Unit Storage Volume Graph shown on **Figure 2.** d. Draw a straight line form this point to the origin, to create the graph	T 8S &R 2W Section 18 *(1)* Slope = 1.20 *(2)* Is this graph attached? Yes ☑ No ☐
2. Determine Runoff Coefficient a. Determine total impervious area b. Determine total tributary area c. Determine Impervious fraction i = *(5)* / *(6)* d. Use *(7)* in **Figure 1** to find Runoff OR $C = .858i^3 - .78i^2 + .774i + .04$	$A_{impervious}$ = _____ acres *(5)* A_{total} = 4.30 acres *(6)* i = _____ *(7)* C = .83 *(8)*
3. Determine 85% Unit Storage Volume a. Use *(8)* in **Figure 2** Draw a Vertical line from *(8)* to the graph, then a Horizontal line to the desired V_u value.	V_u = 1.06 in-acre / acre *(9)*
4. Determine Design Storage Volume a. V_{BMP} = *(9)* x *(6)* [in- acres] b. V_{BMP} = *(10)* / 12 [ft- acres] c. V_{BMP} = *(11)* x 43560 [ft^3]	V_{BMP} = 4.558 in-acre *(10)* V_{BMP} = .3798 ft-acre *(11)* V_{BMP} = 16,546 ft^3 *(12)*

Notes: E-32

Worksheet 3

Design Procedure Form for Extended Detention Basin

Designer: MARGIE DE LAUREL / CYNTHIA GABALDON
Company: URS CORP
Date: 12/18/10
Project: UHS TEMECULA
Location: DETENTION BASIN "C" (E-32)

1. Determine Design Volume (Use Worksheet 1) a. Total Tributary Area (minimum 5 ac.) b. Design Volume, V_{BMP}	A_{total} = 4.30 acres V_{BMP} = 16,545 ft^3
2. Basin Length to Width Ratio (2:1 min.)	Ratio = 2:1 L:W
3. Two-Stage Design a. Overall Design 1) Depth (3.5' min.) 2) Width (30' min.) 3) Length (60' min.) 4) Volume (must be ≥ V_{BMP}) b. Upper Stage 1) Depth (2' min.) 2) Bottom Slope (2% to low flow channel recommended) c. Bottom Stage 1) Depth (1.5' to 3') 2) Length 3) Volume (10 to 25% of V_{BMP})	Depth = 5 ft Width = 30 ft Length = 60 ft Volume = 18,000 ft^3 Depth = _____ ft Slope = _____ % Depth = _____ ft Length = _____ ft Volume = _____ ft^3
4. Forebay Design a. Forebay Volume (5 to 10% of V_{BMP}) b. Outlet pipe drainage time (≅ 45 min)	Volume = _____ ft^3 Drain time = _____ minutes
5. Low-flow Channel a. Depth (9" minimum) b. Flow Capacity (2 * Forebay Q_{OUT})	Depth = _____ ft $Q_{Low\ Flow}$ = _____ cfs
6. Trash Rack or Gravel Pack (check one)	Trash Rack _____ Gravel Pack ✓

7. Basin Outlet a. Outlet type (check one)	Single orifice ✓ Multi-orifice plate _____ Perforated Pipe _____ Other _____
b. Orifice Area c. Orifice Type d. Maximum Depth of water above bottom orifice e. Length of time for 50% V_{BMP} drainage (24 hour minimum) f. Length of time for 100% V_{BMP} drainage (between 48 and 72 hours) g. Attached Documents (all required) 1) Stage vs. Discharge 2) Stage vs. Volume 3) Inflow Hydrograph 4) Basin Routing	Area = _____ ft^2 Type _____ Depth = _____ ft Time 50% = 24 hrs Time 100% = 72 hrs Attached Documents (check) 1) _____ 2) _____ 3) _____ 4) _____
8. Increased Runoff (optional) Is this basin also mitigating increased runoff? Attached Documents (all required) for 2, 5, & 10-year storms: 1) Stage vs. Discharge 2) Stage vs. Volume 3) Inflow Hydrograph 4) Basin Routing	Yes ✓ No _____ (if No, skip to #9) SEE HYDROLOGY REPORT Attached Documents (check) 1) _____ 2) _____ 3) _____ 4) _____
9. Vegetation (check type)	✓ Native Grasses _____ Irrigated Turf _____ Other _____
10. Embankment N/A a. Interior slope (4:1 max.) b. Exterior slope (3:1 max.)	Interior Slope = _____ % Exterior Slope = _____ %
11. Access N/A a. Slope (10% max.) b. Width (16 feet min.)	Slope = _____ % Width = _____ ft

SWALES:

Biofiltration Swale Calculation - Phase I

Design:

Water Quality Design Flow:

$Q_{BMP} = C \times I \times A$

Soil Type = B

Area	Acre	% Impervious	Runoff Coefficient[1]	Rainfall Intensity[1] (in/hr)	Q_{BMP} (cfs)	Minimum Swale Length (ft)	Design Swale Length (ft)	Length Check	Velocity of Swale (ft/s)
E-35	1.77	35	0.41	0.2	0.15	100	46	**OK – using at least min. design**	0.11
E-33	1.26	10	0.33	0.2	0.10	100	26	**OK – using at least min design**	0.06

1. Based on Table 4 from Riverside County Water Quality Management Plan

Swale ID:
E-35 = Swale A
E-33 = Swale B

Calculations based on WQMP Manual Worksheet 9

Design Procedure Form for Design Flow

Uniform Intensity Design Flow

Designer: CYNTHIA GABALDON
Company: URS CORP.
Date: 6/3/11
Project: UHS TEMECULA
Location: Vegetative Swale "B" E-33

1. Determine Impervious Percentage		
a. Determine total tributary area	A_{total} = 1.26 acres	*(1)*
b. Determine Impervious %	i = 10 %	*(2)*
2. Determine Runoff Coefficient Values Use Table 4 and impervious % found in step 1		
a. A Soil Runoff Coefficient	C_a =	*(3)*
b. B Soil Runoff Coefficient	C_b =	*(4)*
c. C Soil Runoff Coefficient	C_c = .33	*(5)*
d. D Soil Runoff Coefficient	C_d =	*(6)*
3. Determine the Area decimal fraction of each soil type in tributary area		
a. Area of A Soil / *(1)* =	A_a =	*(7)*
b. Area of B Soil / *(1)* =	A_b =	*(8)*
c. Area of C Soil / *(1)* =	A_c = 1.0	*(9)*
d. Area of D Soil / *(1)* =	A_d =	*(10)*
4. Determine Runoff Coefficient		
a. C = *(3)*x*(7)* + *(4)*x*(8)* + *(5)*x*(9)* + *(6)*x*(10)* =	C = .33	*(11)*
5. Determine BMP Design flow		
a. Q_{BMP} = C x I x A = *(11)* x 0.2 x *(1)*	Q_{BMP} = .083 $\frac{ft^3}{s}$	*(12)*

Worksheet 9

Design Procedure Form for Grassed Swale

Designer: CYNTHIA GABALDON
Company: URS CORP.
Date: 6/3/11
Project: UHS TEMECULA
Location: vegetative swale "B" E-33

1. Determine Design Flow (Use Worksheet 2)	Q_{BMP} = .083 cfs
2. Swale Geometry a. Swale bottom width (b) b. Side slope (z) c. Flow direction slope (s)	b = 2 ft z = 3:1 s = 1%
3. Design flow velocity (Manning n = 0.2)	v = .061 ft/s
4. Depth of flow (D)	D = .42 ft
5. Design Length (L) L = (7 min) x (flow velocity, ft/sec) x 60	L = 25.62 ft
6. Vegetation (describe)	native grasses, landscaping
8. Outflow Collection (check type used or describe "other")	___ Grated Inlet' ___ Infiltration Trench ___ Underdrain ✓ Other stormdrain

Notes:
using 100' minimum.

Worksheet 2

Design Procedure Form for Design Flow

Uniform Intensity Design Flow

Designer: CYNTHIA GABALDON

Company: URS CORP

Date: 6/3/11

Project: UHS TEMECULA

Location: Vegetative Swale "A" E-35

1. Determine Impervious Percentage		
a. Determine total tributary area	A_{total} = 1.77 acres	*(1)*
b. Determine Impervious %	i = 35 %	*(2)*
2. Determine Runoff Coefficient Values Use Table 4 and impervious % found in step 1		
a. A Soil Runoff Coefficient	C_a =	*(3)*
b. B Soil Runoff Coefficient	C_b = .41	*(4)*
c. C Soil Runoff Coefficient	C_c =	*(5)*
d. D Soil Runoff Coefficient	C_d =	*(6)*
3. Determine the Area decimal fraction of each soil type in tributary area		
a. Area of A Soil / *(1)* =	A_a =	*(7)*
b. Area of B Soil / *(1)* =	A_b = 1.0	*(8)*
c. Area of C Soil / *(1)* =	A_c =	*(9)*
d. Area of D Soil / *(1)* =	A_d =	*(10)*
4. Determine Runoff Coefficient		
a. C = *(3)*x*(7)* + *(4)*x*(8)* + *(5)*x*(9)* + *(6)*x*(10)* =	C = .41	*(11)*
5. Determine BMP Design flow		
a. Q_{BMP} = C x I x A = *(11)* x 0.2 x *(1)*	Q_{BMP} = .15 $\frac{ft^3}{s}$	*(12)*

Worksheet 9

Design Procedure Form for Grassed Swale

Designer: CYNTHIA GABALDON
Company: URS CORP
Date: 6/3/11
Project: VHS TEMECULA
Location: Vegetative Swale "A" E-35

1. Determine Design Flow (Use Worksheet 2)	Q_{BMP} = .15 cfs
2. Swale Geometry a. Swale bottom width (b) b. Side slope (z) c. Flow direction slope (s)	b = 2 ft z = 3:1 s = 12 %
3. Design flow velocity (Manning n = 0.2)	v = .11 ft/s
4. Depth of flow (D)	D = .42 ft
5. Design Length (L) L = (7 min) x (flow velocity, ft/sec) x 60	L = 46 ft
6. Vegetation (describe)	grasses
8. Outflow Collection (check type used or describe "other")	___ Grated Inlet' ___ Infiltration Trench ___ Underdrain ✓ Other stormdrain

Notes:
USING 100' minimum.

RAIN GARDENS:

Rain Garden Calculation – Phase 1 and Ultimate Buildout

Design Calculations:

$A_f = (WQ_V)\ (d_f) / [\ (k)\ (h_f + d_f)\ (t_f)]$

A_f = Surface area of filter bed (ft^2)	See Below	
d_f = filter bed depth (ft) =	4	
k = coefficient of permeability of filter media (ft/day)	30	(typical for fine to medium sand)
h_f = average height of water above filter bed (ft)	0	
t_f = design filter bed drain time (days)	1.67	

(1.67 days or 40 hours is recommended maximum for sand filters, 48 hours for bioretention)

Area	Acre	WQV (ft^3)	A_f (ft^2)	Rain Garden
E-6	0.20	770	16	**A**
E-7	0.16	610	12	**B**
E-9	0.53	2,047	42	**C**
E-10	0.57	2,193	44	**D**
E-11	0.43	1,654	33	**E**
E-15	0.54	2,078	42	**F**

E-6 BMP Area

Design Procedure for BMP Design Volume

RAIN GARDEN "A"

85th percentile runoff event

Designer: Cynthia Gabaldon
Company: URS Corporation
Date: 12/28/2010
Project: UHS Temecula Hospital
Location: City of Temecula

1. Create Unit Storage Volume Graph a. Site location (Township, Range, and Section). b. Slope value from the Design Volume Curve in **Appendix A**. c. Plot this value on the Unit Storage Volume Graph shown on **Figure 2.** d. Draw a straight line form this point to the origin, to create the graph	T - &R Section	*(1)*
	Slope = 1.2	*(2)*
	Is this graph attached? Yes ☐ No ☐	
2. Determine Runoff Coefficient a. Determine total impervious area	$A_{impervious}$ = 0.20 acres	*(5)*
b. Determine total tributary area	A_{total} = 0.20 acres	*(6)*
c. Determine Impervious fraction i = *(5)* / *(6)*	i = 1.0	*(7)*
d. Use *(7)* in **Figure 1** to find Runoff OR $C = .858i^3 - .78i^2 + .774i + .04$	C = 0.89	*(8)*
3. Determine 85% Unit Storage Volume a. Use *(8)* in **Figure 2** Draw a Vertical line from *(8)* to the graph, then a Horizontal line to the desired V_u value.	V_u = 1.06 in-acre / acre	*(9)*
4. Determine Design Storage Volume a. V_{BMP} = *(9)* x *(6)* [in- acres]	V_{BMP} = 0.212 in-acre	*(10)*
b. V_{BMP} = *(10)* / 12 [ft- acres]	V_{BMP} = 0.018 ft-acre	*(11)*
c. V_{BMP} = *(11)* x 43560 [ft^3]	V_{BMP} = 769.56 ft^3	*(12)*

Notes:

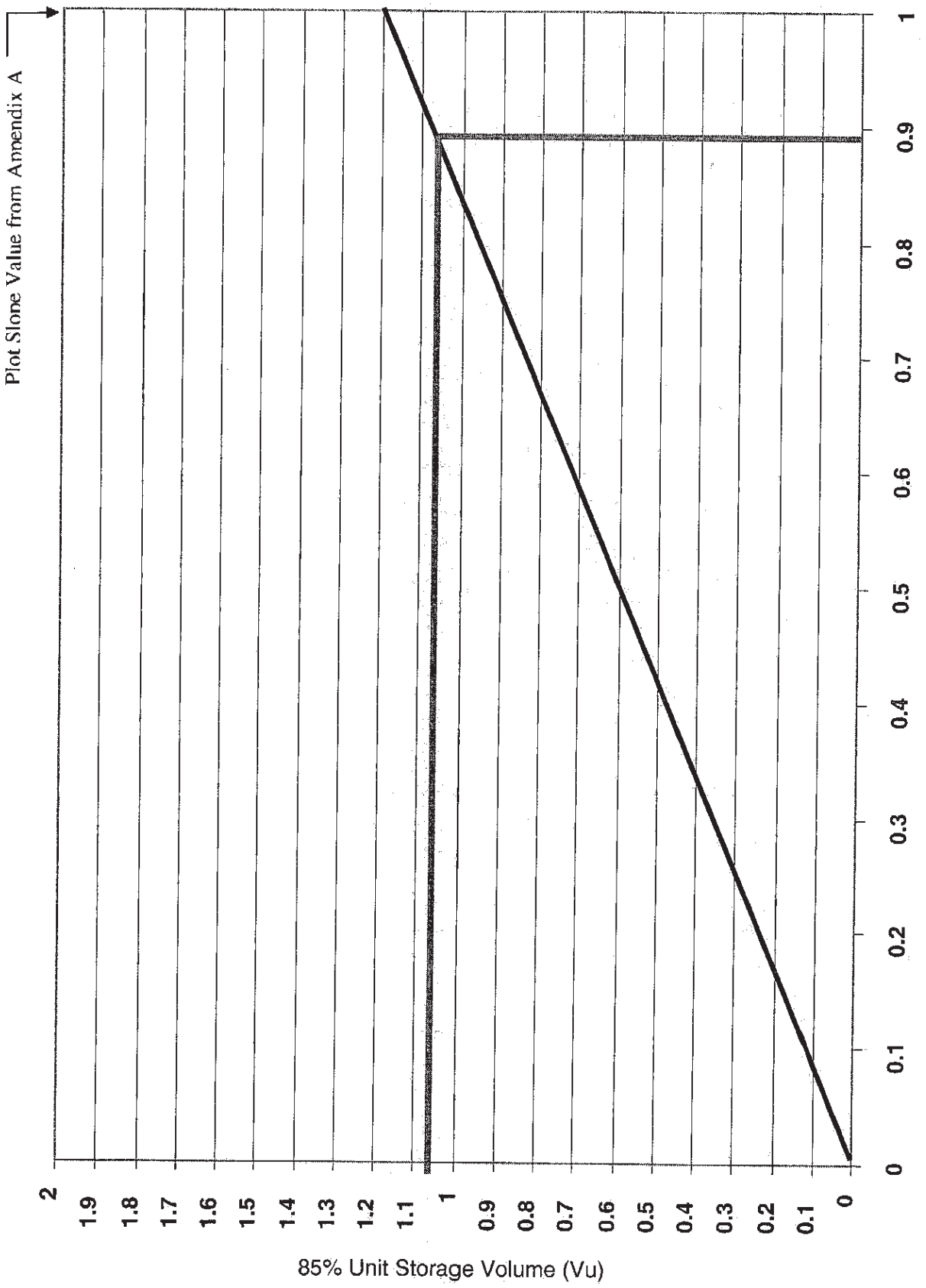


Figure 2 Unit Storage Volume Graph

E-7 BMP Area

Design Procedure for BMP Design Volume

85th percentile runoff event

RAINGARDEN "B"

Designer: Lisa Berman
Company: URS Corporation
Date: 11/02/2010
Project: UHS Temecula Hospital
Location: City of Temecula

1. Create Unit Storage Volume Graph a. Site location (Township, Range, and Section). b. Slope value from the Design Volume Curve in **Appendix A.** c. Plot this value on the Unit Storage Volume Graph shown on **Figure 2.** d. Draw a straight line form this point to the origin, to create the graph	T &R Section	*(1)*
	Slope = 1.2	*(2)*
	Is this graph attached? Yes ☐ No ☐	
2. Determine Runoff Coefficient a. Determine total impervious area	$A_{impervious}$ = 0.16 acres	*(5)*
b. Determine total tributary area	A_{total} = 0.16 acres	*(6)*
c. Determine Impervious fraction i = *(5)* / *(6)*	i = 1.0	*(7)*
d. Use *(7)* in **Figure 1** to find Runoff OR $C = .858i^3 - .78i^2 + .774i + .04$	C = 0.89	*(8)*
3. Determine 85% Unit Storage Volume a. Use *(8)* in **Figure 2** Draw a Vertical line from *(8)* to the graph, then a Horizontal line to the desired V_u value.	V_u = 1.06 in-acre / acre	*(9)*
4. Determine Design Storage Volume a. V_{BMP} = *(9)* x *(6)* [in- acres]	V_{BMP} = 0.17 in-acre	*(10)*
b. V_{BMP} = *(10)* / 12 [ft- acres]	V_{BMP} = 0.014 ft-acre	*(11)*
c. V_{BMP} = *(11)* x 43560 [ft^3]	V_{BMP} = 609.84 ft^3	*(12)*

Notes:

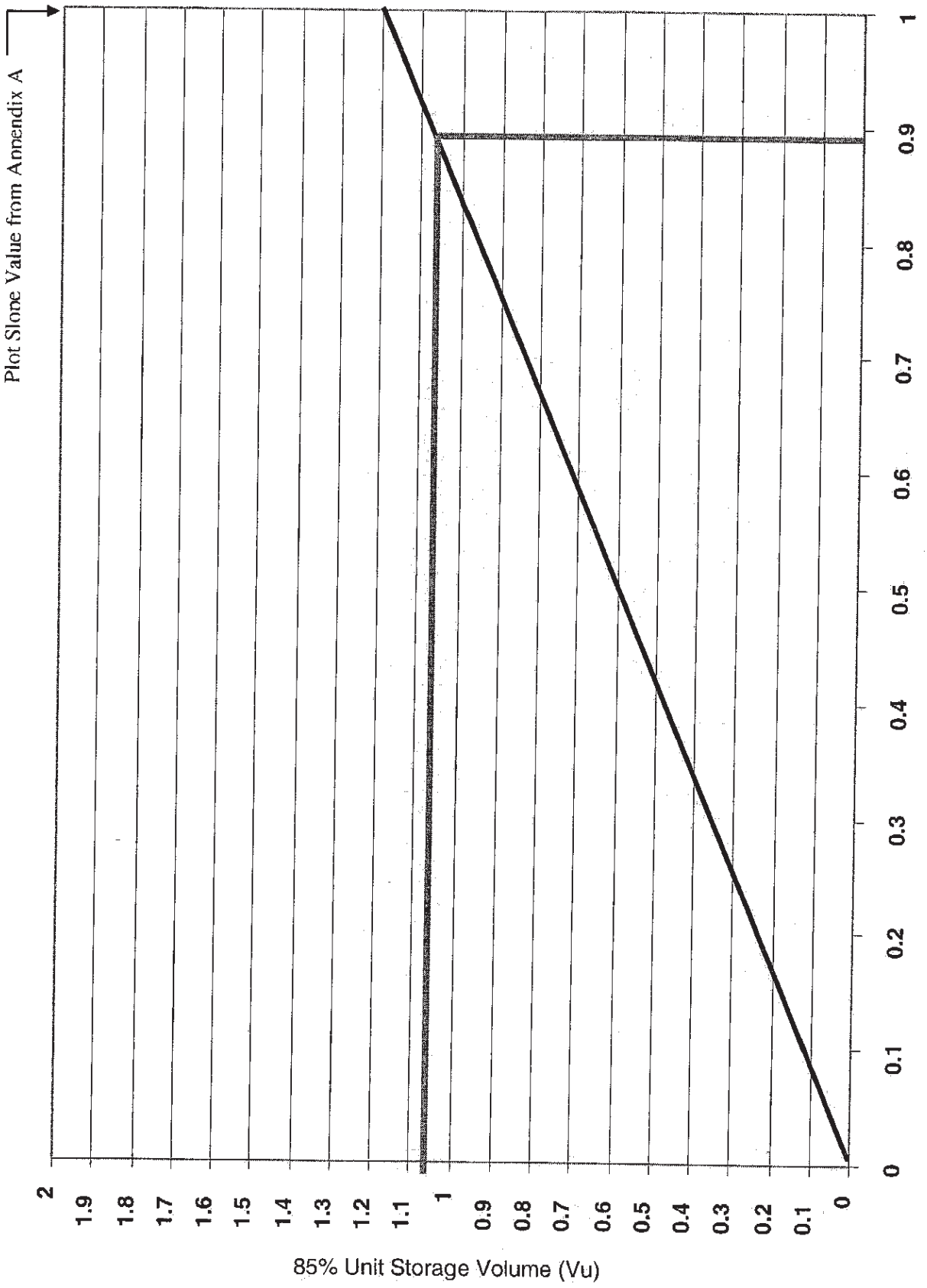


Figure 2 Unit Storage Volume Graph

E-9 BMP Area

Design Procedure for BMP Design Volume

RAINGARDEN "C"

85th percentile runoff event

Designer: Cynthia Gabaldon
Company: URS Corporation
Date: 11/02/2010
Project: UHS Temecula Hospital
Location: City of Temecula

1. Create Unit Storage Volume Graph a. Site location (Township, Range, and Section). b. Slope value from the Design Volume Curve in **Appendix A.** c. Plot this value on the Unit Storage Volume Graph shown on **Figure 2.** d. Draw a straight line form this point to the origin, to create the graph	T &R Section	*(1)*
	Slope = 1.2	*(2)*
	Is this graph attached? Yes ☐ No ☐	
2. Determine Runoff Coefficient a. Determine total impervious area	$A_{impervious}$ = 0.53 acres	*(5)*
b. Determine total tributary area	A_{total} = 0.53 acres	*(6)*
c. Determine Impervious fraction i = ***(5)*** / ***(6)***	i = 1.0	*(7)*
d. Use ***(7)*** in **Figure 1** to find Runoff OR $C = .858i^3 - .78i^2 + .774i + .04$	C = 0.89	*(8)*
3. Determine 85% Unit Storage Volume a. Use ***(8)*** in **Figure 2** Draw a Vertical line from ***(8)*** to the graph, then a Horizontal line to the desired V_u value.	V_u = 1.06 in-acre / acre	*(9)*
4. Determine Design Storage Volume a. V_{BMP} = ***(9)*** x ***(6)*** [in- acres]	V_{BMP} = 0.562 in-acre	*(10)*
b. V_{BMP} = ***(10)*** / 12 [ft- acres]	V_{BMP} = 0.047 ft-acre	*(11)*
c. V_{BMP} = ***(11)*** x 43560 [ft^3]	V_{BMP} = 2047.32 ft^3	*(12)*

Notes:

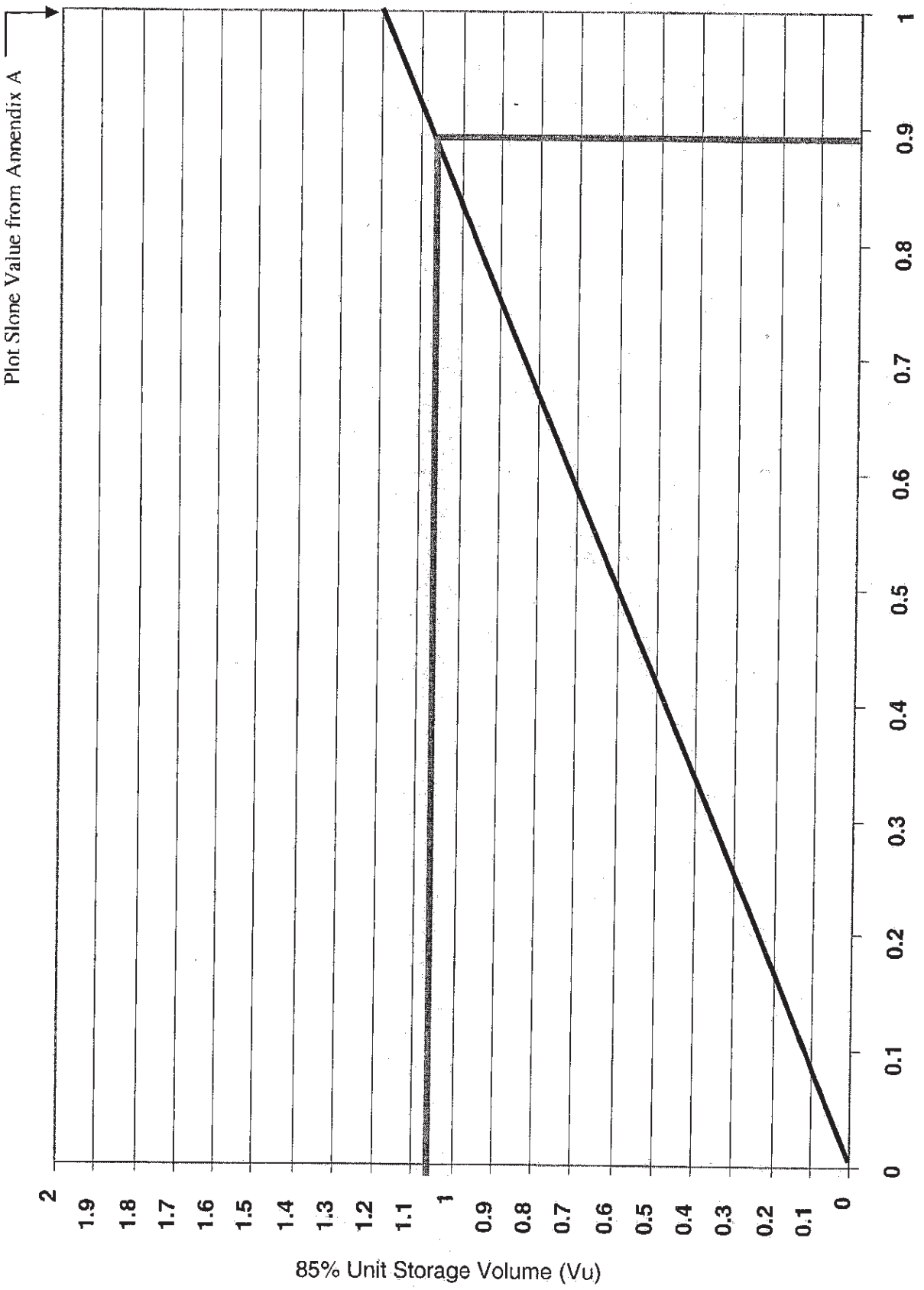


Figure 2 Unit Storage Volume Graph

E-10 BMP Area

Design Procedure for BMP Design Volume

RAIN GARDEN "D"

85th percentile runoff event

Designer: Lisa Berman
Company: URS Corporation
Date: 11/02/2010
Project: UHS Temecula Hospital
Location: City of Temecula

1. Create Unit Storage Volume Graph		
a. Site location (Township, Range, and Section).	T &R Section	*(1)*
b. Slope value from the Design Volume Curve in **Appendix A.**	Slope = 1.2	*(2)*
c. Plot this value on the Unit Storage Volume Graph shown on **Figure 2.**		
d. Draw a straight line form this point to the origin, to create the graph	Is this graph attached? Yes ☐ No ☐	
2. Determine Runoff Coefficient		
a. Determine total impervious area	$A_{impervious}$ = 0.57 acres	*(5)*
b. Determine total tributary area	A_{total} = 0.57 acres	*(6)*
c. Determine Impervious fraction i = *(5)* / *(6)*	i = 1.0	*(7)*
d. Use *(7)* in **Figure 1** to find Runoff OR $C = .858i^3 - .78i^2 + .774i + .04$	C = 0.89	*(8)*
3. Determine 85% Unit Storage Volume		
a. Use *(8)* in **Figure 2** Draw a Vertical line from *(8)* to the graph, then a Horizontal line to the desired V_u value.	V_u = 1.06 in-acre / acre	*(9)*
4. Determine Design Storage Volume		
a. V_{BMP} = *(9)* x *(6)* [in- acres]	V_{BMP} = 0.60 in-acre	*(10)*
b. V_{BMP} = *(10)* / 12 [ft- acres]	V_{BMP} = 0.050 ft-acre	*(11)*
c. V_{BMP} = *(11)* x 43560 [ft^3]	V_{BMP} = 2193.24 ft^3	*(12)*

Notes:

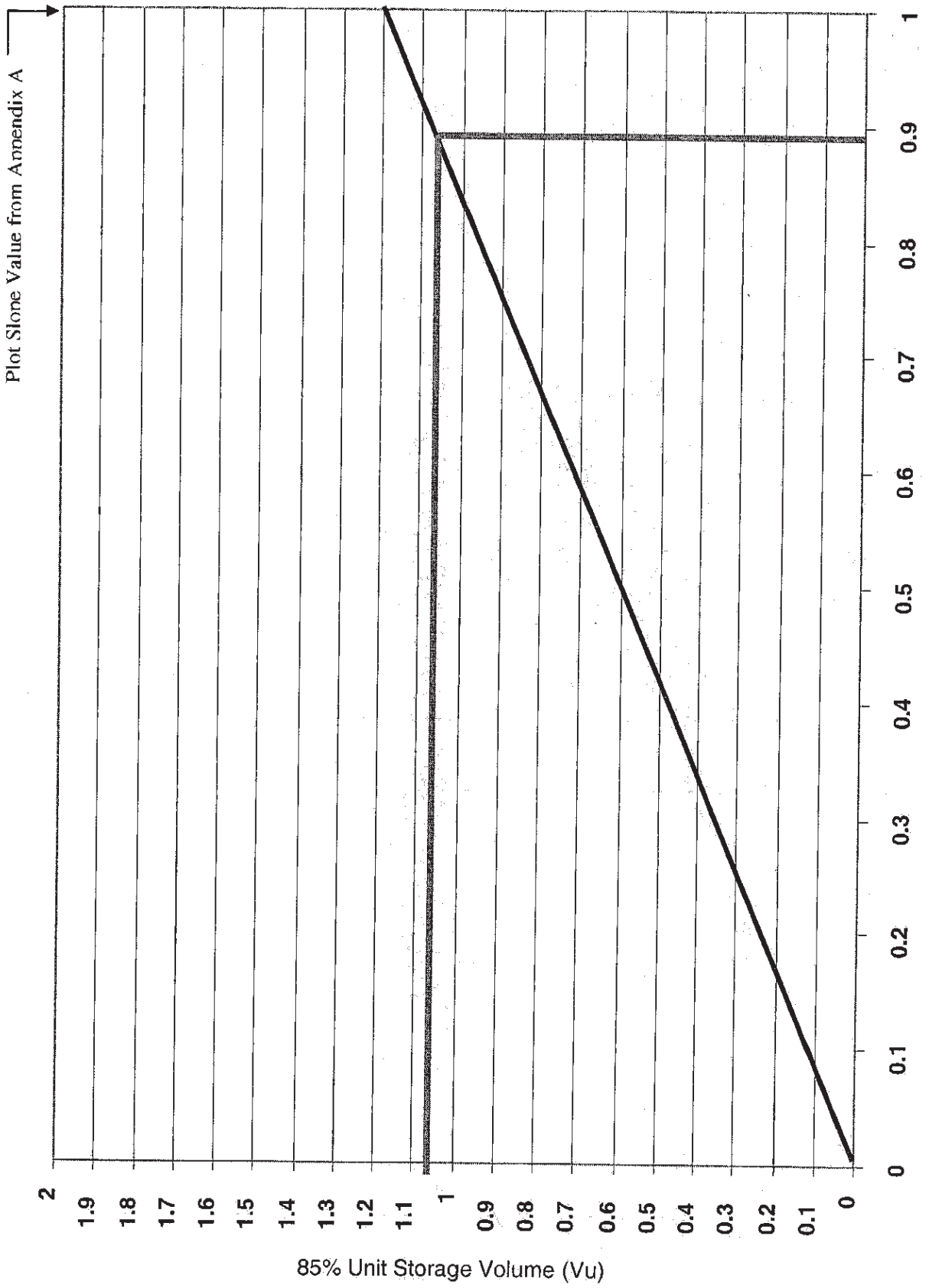


Figure 2 Unit Storage Volume Graph

E-11 BMP Area

Design Procedure for BMP Design Volume

RAIN GARDEN "E"

85th percentile runoff event

Designer: Cynthia Gabaldon
Company: URS Corporation
Date: 12/28/2010
Project: UHS Temecula Hospital
Location: City of Temecula

1. Create Unit Storage Volume Graph a. Site location (Township, Range, and Section). b. Slope value from the Design Volume Curve in **Appendix A**. c. Plot this value on the Unit Storage Volume Graph shown on **Figure 2.** d. Draw a straight line form this point to the origin, to create the graph	T &R Section	*(1)*
	Slope = 1.2	*(2)*
	Is this graph attached? Yes ☐ No ☐	
2. Determine Runoff Coefficient a. Determine total impervious area	$A_{impervious}$ = 0.43 acres	*(5)*
b. Determine total tributary area	A_{total} = 0.43 acres	*(6)*
c. Determine Impervious fraction i = *(5)* / *(6)*	i = 1.0	*(7)*
d. Use *(7)* in **Figure 1** to find Runoff OR $C = .858i^3 - .78i^2 + .774i + .04$	C = 0.89	*(8)*
3. Determine 85% Unit Storage Volume a. Use *(8)* in **Figure 2** Draw a Vertical line from *(8)* to the graph, then a Horizontal line to the desired V_u value.	V_u = 1.06 in-acre / acre	*(9)*
4. Determine Design Storage Volume a. V_{BMP} = *(9)* x *(6)* [in- acres]	V_{BMP} = 0.45 in-acre	*(10)*
b. V_{BMP} = *(10)* / 12 [ft- acres]	V_{BMP} = 0.038 ft-acre	*(11)*
c. V_{BMP} = *(11)* x 43560 [ft^3]	V_{BMP} = 1654.55 ft^3	*(12)*

Notes:

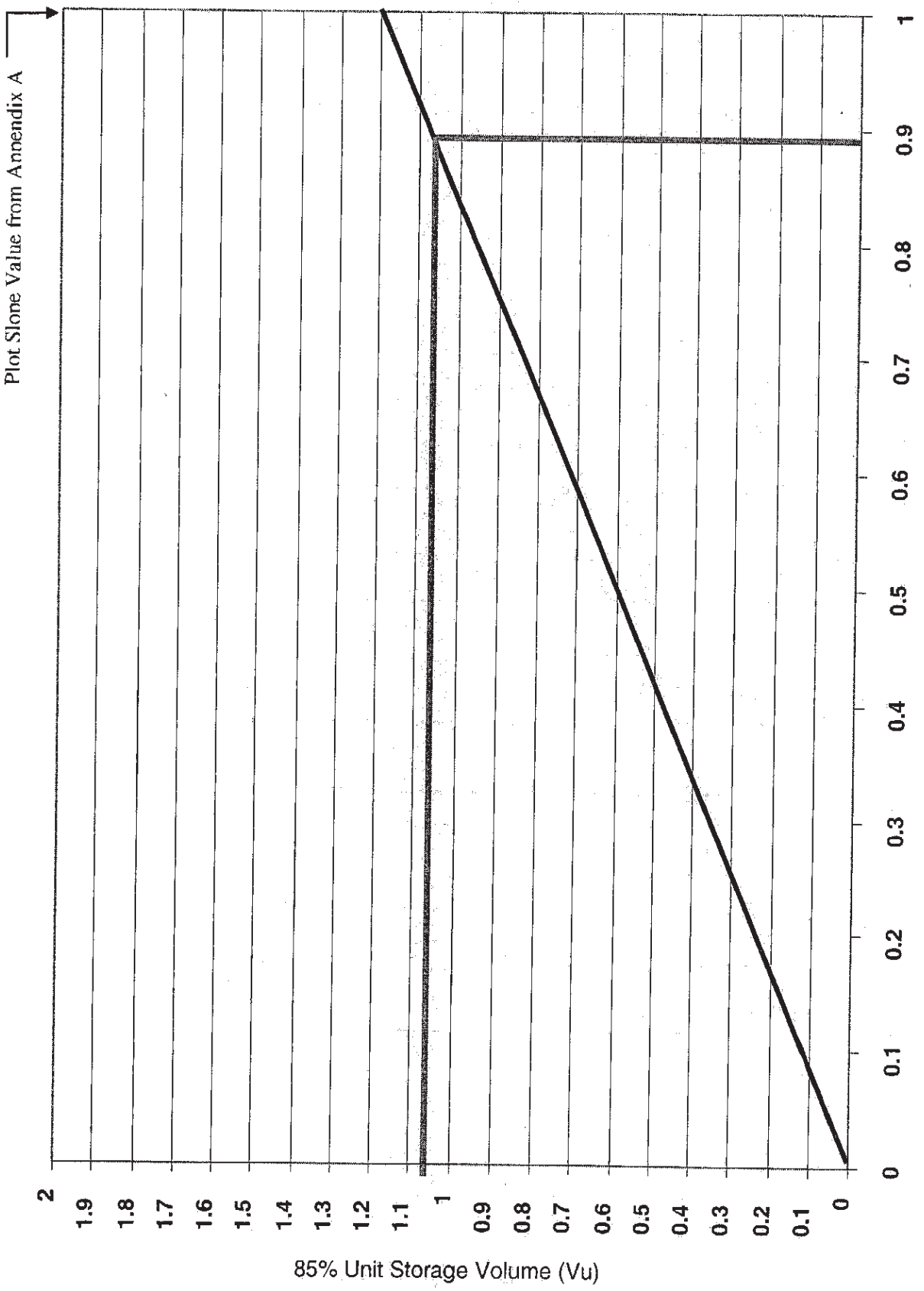


Figure 2 Unit Storage Volume Graph

E-15 BMP Area

Design Procedure for BMP Design Volume

RAIN GARDEN "F"

85th percentile runoff event

Designer: Cynthia Gabaldon
Company: URS Corporation
Date: 12/28/2010
Project: UHS Temecula Hospital
Location: City of Temecula

1. Create Unit Storage Volume Graph		
a. Site location (Township, Range, and Section).	T &R Section	*(1)*
b. Slope value from the Design Volume Curve in **Appendix A**.	Slope = 1.2	*(2)*
c. Plot this value on the Unit Storage Volume Graph shown on **Figure 2.**		
d. Draw a straight line form this point to the origin, to create the graph	Is this graph attached? Yes ☐ No ☐	
2. Determine Runoff Coefficient		
a. Determine total impervious area	$A_{impervious}$ = 0.54 acres	*(5)*
b. Determine total tributary area	A_{total} = 0.54 acres	*(6)*
c. Determine Impervious fraction i = *(5)* / *(6)*	i = 1.0	*(7)*
d. Use *(7)* in **Figure 1** to find Runoff OR C = $.858i^3 - .78i^2 + .774i + .04$	C = 0.89	*(8)*
3. Determine 85% Unit Storage Volume		
a. Use *(8)* in **Figure 2** Draw a Vertical line from *(8)* to the graph, then a Horizontal line to the desired V_u value.	V_u = 1.06 in-acre/acre	*(9)*
4. Determine Design Storage Volume		
a. V_{BMP} = *(9)* x *(6)* [in- acres]	V_{BMP} = 0.57 in-acre	*(10)*
b. V_{BMP} = *(10)* / 12 [ft- acres]	V_{BMP} = 0.047 ft-acre	*(11)*
c. V_{BMP} = *(11)* x 43560 [ft^3]	V_{BMP} = 2077.8 ft^3	*(12)*

Notes:

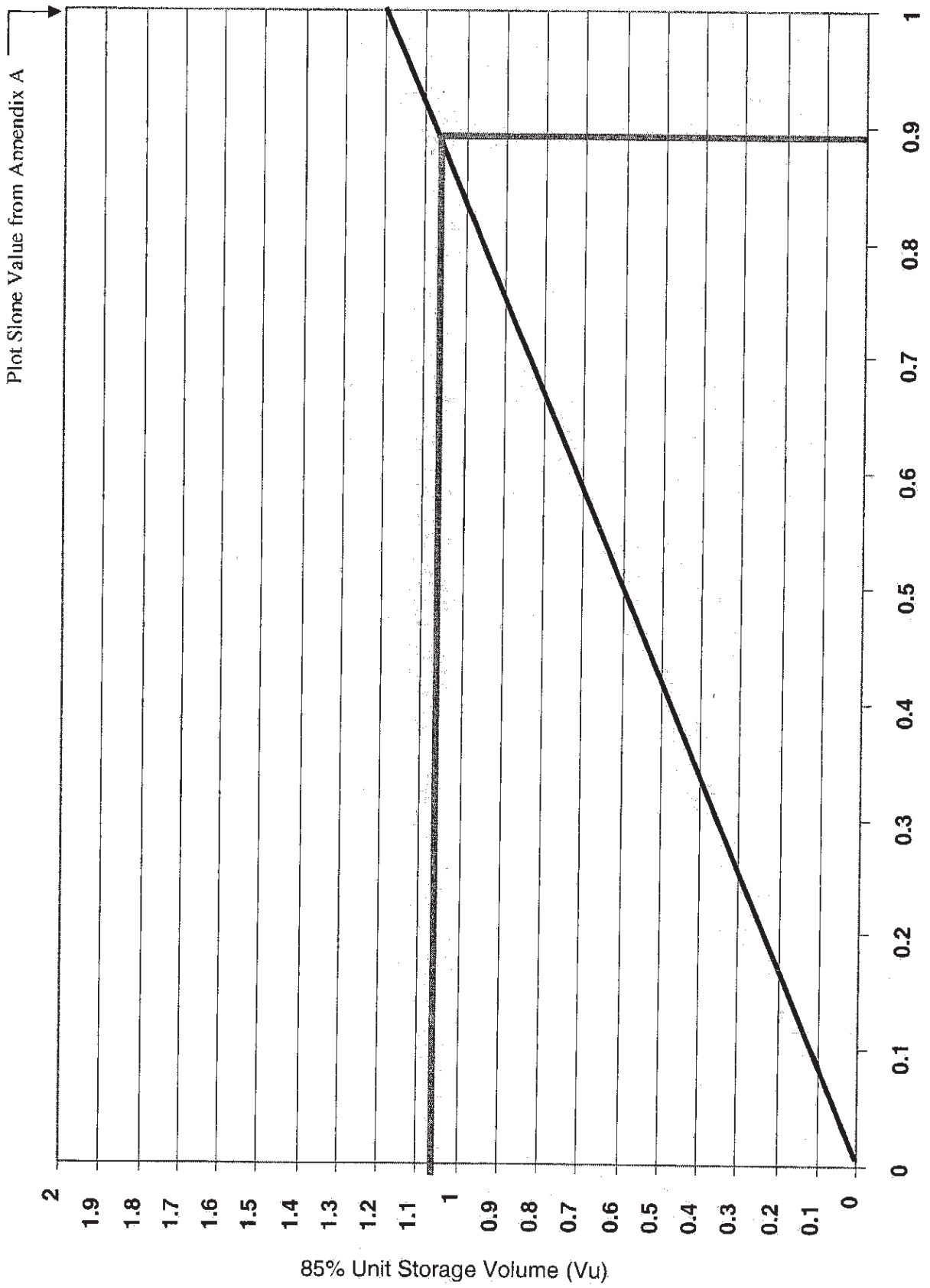
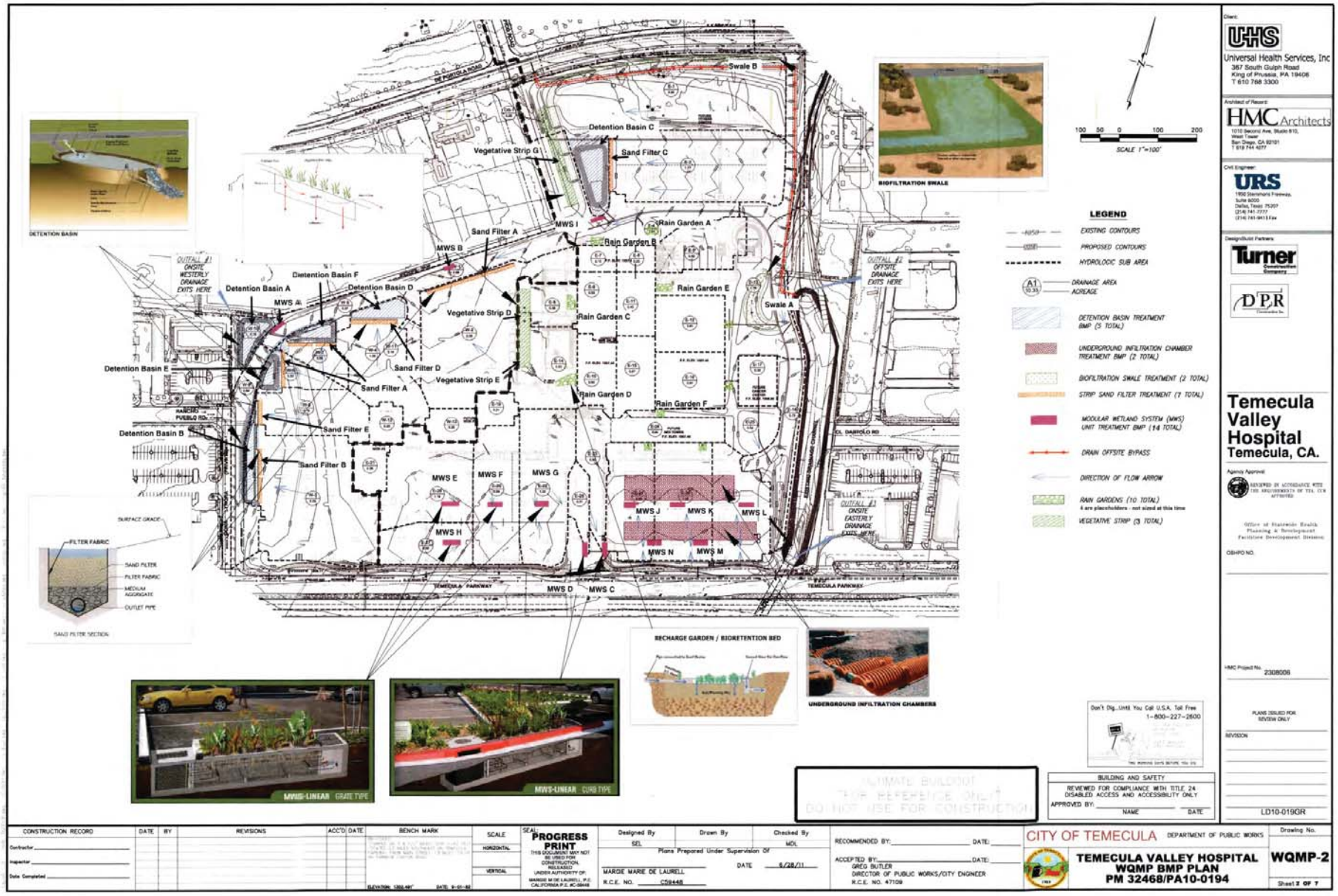


Figure 2 Unit Storage Volume Graph



Client:
UHS
Universal Health Services, Inc
367 South Gulph Road
King of Prussia, PA 19406
T 610 768 3300

Architect of Record:
HMC Architects
1010 Second Ave, Studio 810,
West Tower
San Diego, CA 92101
T 619 744 4077

Civil Engineer:
URS
1950 Stemmons Freeway,
Suite 6000
Dallas, Texas 75207
(214) 747-7777
(214) 741-9413 Fax

Design/Build Partners:
Turner Construction Company
DPR Construction Inc.

Temecula Valley Hospital
Temecula, CA.

Agency Approval:
REVIEWED IN ACCORDANCE WITH THE REQUIREMENTS OF TITLE 24 PART 2 AND APPROVED
Office of Statewide Health Planning & Development Facilities Development Division
OSHPD NO.

HMC Project No. 2308006

PLANS ISSUED FOR REVIEW ONLY

REVISION

LD10-019GR

BUILDING AND SAFETY
REVIEWED FOR COMPLIANCE WITH TITLE 24 DISABLED ACCESS AND ACCESSIBILITY ONLY
APPROVED BY: _____ NAME _____ DATE

CONSTRUCTION RECORD	DATE	BY	REVISIONS	ACC'D	DATE	BENCH MARK
Contractor						
Inspector						
Date Completed						ELEVATION: 1260.48' DATE: 9-01-88

SCALE: HORIZONTAL / VERTICAL

SEAL: PROGRESS PRINT
THIS DOCUMENT MAY NOT BE USED FOR CONSTRUCTION. RELEASED UNDER AUTHORITY OF: MARGIE M DE LAURELL, P.E. CALIFORNIA P.E. #C-58448

Designed By	Drawn By	Checked By
SEL		MDL

Plans Prepared Under Supervision Of
MARGIE MARIE DE LAURELL
R.C.E. NO. C58448
DATE 6/28/11

RECOMMENDED BY: _____ DATE: _____
ACCEPTED BY: _____ DATE: _____
GREG BUTLER
DIRECTOR OF PUBLIC WORKS/CITY ENGINEER
R.C.E. NO. 47109

CITY OF TEMECULA DEPARTMENT OF PUBLIC WORKS

TEMECULA VALLEY HOSPITAL
WQMP BMP PLAN
PM 32468/PA10-0194

Drawing No. **WQMP-2**
Sheet 2 OF 7

Sand Filters :

Sand Filter Strip Calculation -
Ultimate
Given:

Trench Width =	1.5	ft

Sand Filter Design

$A_f = (WQ_V)\ (d_f) / [\ (k)\ (h_f + d_f)\ (t_f)]$

A_f = Surface area of filter bed (ft^2)

d_f = filter bed depth (ft)	4	
k = coefficient of permeability of filter media (ft/day)	30	(typical for fine to medium sand)
h_f = average height of water above filter bed (ft)	0	
t_f = design filter bed drain time (days)	1.67	

(1.67 days or 40 hours is recommended maximum for sand filters, 48 hours for bioretention)

Area	Acre	Unit Storage Volume	WQV (ft^3)	A_f (ft^2)	Requird Length (ft)	Design Length (ft)	Length Check	Underdrain Pipe Size (in)
W-2	1.88	1.060	7234	144	**96.26**	150	OK	**4**
W-11	0.25	1.060	962	19	**12.80**	77	OK	**4**

Pipe sizing:
Material = PVC
Slope = 0.50%

Pipe Size (in)	Full Flow Capacity (cfs)	Use 50% Flow Capacity (cfs)
4	0.17	**0.085**

Sand Filter IDs:
W-2 = Sand Filter A
W-11 = Sand Filter B

Worksheet 2

Design Procedure Form for Design Flow

Uniform Intensity Design Flow

Designer: CYNTHIA GABALDON
Company: URS CORP
Date: 6/3/11
Project: UHS TEMECULA
Location: TEMECULA, Ca W-1 MWSB

1. Determine Impervious Percentage		
a. Determine total tributary area	A_{total} = 1.68 acres	*(1)*
b. Determine Impervious %	i = 100 %	*(2)*
2. Determine Runoff Coefficient Values Use **Table 4** and impervious % found in step 1		
a. A Soil Runoff Coefficient	C_a =	*(3)*
b. B Soil Runoff Coefficient	C_b = .90	*(4)*
c. C Soil Runoff Coefficient	C_c =	*(5)*
d. D Soil Runoff Coefficient	C_d =	*(6)*
3. Determine the Area decimal fraction of each soil type in tributary area		
a. Area of A Soil / *(1)* =	A_a =	*(7)*
b. Area of B Soil / *(1)* =	A_b = 1.0	*(8)*
c. Area of C Soil / *(1)* =	A_c =	*(9)*
d. Area of D Soil / *(1)* =	A_d =	*(10)*
4. Determine Runoff Coefficient		
a. C = *(3)*x*(7)* + *(4)*x*(8)* + *(5)*x*(9)* + *(6)*x*(10)* =	C = .90	*(11)*
5. Determine BMP Design flow		
a. Q_{BMP} = C x I x A = *(11)* x 0.2 x *(1)*	Q_{BMP} = .122 $\frac{ft^3}{s}$	*(12)*

Worksheet 11

Design Procedure Form for Water Quality Inlets

Designer: CYNTHIA GABALDON
Company: URS CORP
Date: 6/3/11
Project: UHS Temecula
Location: Temecula, Ca W-1

1. Determine Design Flow Rate (Use Worksheet 2)	Q_{BMP} = .122 cfs Q_{100} = 2.4 cfs
2. Water Quality Inlet Manufacturer Name Model Flow Capacity of Model Please include a technical sheet from the manufacturer with information on this model.	Make MWS Model Linear curb type(L) 14' Capacity .15 cfs ~~treatment~~ Bypass = 2.9 cfs

Notes:
.68 acres
MWS "B"

Worksheet 2

Design Procedure Form for Design Flow

Uniform Intensity Design Flow

Designer: CYNTHIA GABALDON
Company: URS CORP
Date: 6/3/11
Project: UHS TEMECULA
Location: TEMECULA, CA W-9 MWS-A

1. Determine Impervious Percentage		
a. Determine total tributary area	A_{total} = .34 acres	*(1)*
b. Determine Impervious %	i = 100 %	*(2)*
2. Determine Runoff Coefficient Values Use Table 4 and impervious % found in step 1		
a. A Soil Runoff Coefficient	C_a =	*(3)*
b. B Soil Runoff Coefficient	C_b = .90	*(4)*
c. C Soil Runoff Coefficient	C_c =	*(5)*
d. D Soil Runoff Coefficient	C_d =	*(6)*
3. Determine the Area decimal fraction of each soil type in tributary area		
a. Area of A Soil / *(1)* =	A_a =	*(7)*
b. Area of B Soil / *(1)* =	A_b = 1.0	*(8)*
c. Area of C Soil / *(1)* =	A_c =	*(9)*
d. Area of D Soil / *(1)* =	A_d =	*(10)*
4. Determine Runoff Coefficient		
a. C = *(3)*x*(7)* + *(4)*x*(8)* + *(5)*x*(9)* + *(6)*x*(10)* =	C = .90	*(11)*
5. Determine BMP Design flow		
a. Q_{BMP} = C x I x A = *(11)* x 0.2 x *(1)*	Q_{BMP} = .061 $\frac{ft^3}{s}$	*(12)*

Worksheet 11

Design Procedure Form for Water Quality Inlets

Designer: CYNTHIA GABALDON
Company: URS CORP
Date: 6/3/11
Project: UHS TEMECULA
Location: TEMECULA, CA W-9 MWS A

1. Determine Design Flow Rate (Use Worksheet 2)	Q_{BMP} = .061 cfs Q_{100} = 1.1
2. Water Quality Inlet Manufacturer Name Model Flow Capacity of Model Please include a technical sheet from the manufacturer with information on this model.	Make MWS Model Linear Curb - 14' Capacity 6.15 cfs Bypass 2.9 cfs

Notes: MWS "A"

Worksheet 2

Design Procedure Form for Design Flow

Uniform Intensity Design Flow

Designer: CYNTHIA GABALDON
Company: URS CORP
Date: 6/3/11
Project: UHS Temecula
Location: Temecula Ca E-4 MWS "I"

1. Determine Impervious Percentage		
a. Determine total tributary area	A_{total} = .84 acres	*(1)*
b. Determine Impervious %	i = 100 %	*(2)*
2. Determine Runoff Coefficient Values Use Table 4 and impervious % found in step 1		
a. A Soil Runoff Coefficient	C_a =	*(3)*
b. B Soil Runoff Coefficient	C_b = .90	*(4)*
c. C Soil Runoff Coefficient	C_c =	*(5)*
d. D Soil Runoff Coefficient	C_d =	*(6)*
3. Determine the Area decimal fraction of each soil type in tributary area		
a. Area of A Soil / *(1)* =	A_a =	*(7)*
b. Area of B Soil / *(1)* =	A_b = 1.0	*(8)*
c. Area of C Soil / *(1)* =	A_c =	*(9)*
d. Area of D Soil / *(1)* =	A_d =	*(10)*
4. Determine Runoff Coefficient		
a. C = *(3)*x*(7)* + *(4)*x*(8)* + *(5)*x*(9)* + *(6)*x*(10)* =	C = .90	*(11)*
5. Determine BMP Design flow		
a. Q_{BMP} = C x I x A = *(11)* x 0.2 x *(1)*	Q_{BMP} = .151 $\frac{ft^3}{s}$	*(12)*

Worksheet 11

Design Procedure Form for Water Quality Inlets

Designer: CYNTHIA BABALDON
Company: URS CORP
Date: 6/3/11
Project: UHS Temecula
Location: Temecula, CA E-4 MWS "I"

1. Determine Design Flow Rate (Use Worksheet 2)	Q_{BMP} = .151 cfs Q100 = 2.9
2. Water Quality Inlet Manufacturer Name Model Flow Capacity of Model Please include a technical sheet from the manufacturer with information on this model.	Make MWS Model Linear Curb - 14' Capacity .15 cfs Bypass 2.9

Notes: MWS "I"

Worksheet 2

Design Procedure Form for Design Flow

Uniform Intensity Design Flow

Designer: CYNTHIA GABALDON
Company: VRS LORD
Date: 6/3/11
Project: VHS TEMECULA
Location: Temecula, Ca E-28 MWS "D"

1. Determine Impervious Percentage		
a. Determine total tributary area	A_{total} = .21 acres	*(1)*
b. Determine Impervious %	i = 100 %	*(2)*
2. Determine Runoff Coefficient Values Use Table 4 and impervious % found in step 1		
a. A Soil Runoff Coefficient	C_a =	*(3)*
b. B Soil Runoff Coefficient	C_b = .90	*(4)*
c. C Soil Runoff Coefficient	C_c =	*(5)*
d. D Soil Runoff Coefficient	C_d =	*(6)*
3. Determine the Area decimal fraction of each soil type in tributary area		
a. Area of A Soil / *(1)* =	A_a =	*(7)*
b. Area of B Soil / *(1)* =	A_b = 1.0	*(8)*
c. Area of C Soil / *(1)* =	A_c =	*(9)*
d. Area of D Soil / *(1)* =	A_d =	*(10)*
4. Determine Runoff Coefficient		
a. C = *(3)*x*(7)* + *(4)*x*(8)* + *(5)*x*(9)* + *(6)*x*(10)* =	C = .90	*(11)*
5. Determine BMP Design flow		
a. Q_{BMP} = C x I x A = *(11)* x 0.2 x *(1)*	Q_{BMP} = .038 $\frac{ft^3}{s}$	*(12)*

Worksheet 11

Design Procedure Form for Water Quality Inlets

Designer: CYNTHIA GABALDON
Company: URS CORP
Date: 6/3/11
Project: VHS Temecula
Location: Temecula, Ca E-28

1. Determine Design Flow Rate (Use Worksheet 2)	Q_{BMP} = .038 cfs Q100 = 0.9
2. Water Quality Inlet Manufacturer Name Model Flow Capacity of Model Please include a technical sheet from the manufacturer with information on this model.	Make MWS Model Linear Curb - 14' Capacity .15 cfs Bypass 2.9

Notes: MWS "D"

Worksheet 2

Design Procedure Form for Design Flow

Uniform Intensity Design Flow

Designer: CYNTHIA GABALDON
Company: URS CORP.
Date: 6/3/11
Project: VHS
Location: Temecula, Ca E-39 MWS "F"

1. Determine Impervious Percentage		
a. Determine total tributary area	A_{total} = .81 acres	*(1)*
b. Determine Impervious %	i = 100 %	*(2)*
2. Determine Runoff Coefficient Values Use Table 4 and impervious % found in step 1		
a. A Soil Runoff Coefficient	C_a =	*(3)*
b. B Soil Runoff Coefficient	C_b = .90	*(4)*
c. C Soil Runoff Coefficient	C_c =	*(5)*
d. D Soil Runoff Coefficient	C_d =	*(6)*
3. Determine the Area decimal fraction of each soil type in tributary area		
a. Area of A Soil / *(1)* =	A_a =	*(7)*
b. Area of B Soil / *(1)* =	A_b = 1.0	*(8)*
c. Area of C Soil / *(1)* =	A_c =	*(9)*
d. Area of D Soil / *(1)* =	A_d =	*(10)*
4. Determine Runoff Coefficient		
a. C = *(3)*x*(7)* + *(4)*x*(8)* + *(5)*x*(9)* + *(6)*x*(10)* =	C = .9	*(11)*
5. Determine BMP Design flow		
a. Q_{BMP} = C x I x A = *(11)* x 0.2 x *(1)*	Q_{BMP} = .145 $\frac{ft^3}{s}$	*(12)*

Worksheet 11

Design Procedure Form for Water Quality Inlets

Designer: CYNTHIA GABALDON
Company: VRS, CORP
Date: 6/3/11
Project: VHS
Location: Temecula, Ca E-39

1. Determine Design Flow Rate (Use Worksheet 2)	Q_{BMP} = .145 cfs Q100 = 3.7 cfs
2. Water Quality Inlet Manufacturer Name Model Flow Capacity of Model Please include a technical sheet from the manufacturer with information on this model.	Make MWS Model Linear Grate 14' Capacity .15 cfs Bypass = 4.28

Notes: MWS "F"

Worksheet 2

Design Procedure Form for Design Flow

Uniform Intensity Design Flow

Designer: CYNTHIA GABALDON
Company: URS CORP.
Date: 6/3/11
Project: UHS
Location: Temecula, Ca E-40 MWS H

1. Determine Impervious Percentage		
a. Determine total tributary area	A_{total} = .58 acres	*(1)*
b. Determine Impervious %	i = 100 %	*(2)*
2. Determine Runoff Coefficient Values Use Table 4 and impervious % found in step 1		
a. A Soil Runoff Coefficient	C_a =	*(3)*
b. B Soil Runoff Coefficient	C_b = .90	*(4)*
c. C Soil Runoff Coefficient	C_c =	*(5)*
d. D Soil Runoff Coefficient	C_d =	*(6)*
3. Determine the Area decimal fraction of each soil type in tributary area		
a. Area of A Soil / *(1)* =	A_a =	*(7)*
b. Area of B Soil / *(1)* =	A_b = 1.0	*(8)*
c. Area of C Soil / *(1)* =	A_c =	*(9)*
d. Area of D Soil / *(1)* =	A_d =	*(10)*
4. Determine Runoff Coefficient		
a. C = *(3)*x*(7)* + *(4)*x*(8)* + *(5)*x*(9)* + *(6)*x*(10)* =	C = .90	*(11)*
5. Determine BMP Design flow		
a. Q_{BMP} = C x I x A = *(11)* x 0.2 x *(1)*	Q_{BMP} = .104 $\frac{ft^3}{s}$	*(12)*

Worksheet 11

Design Procedure Form for Water Quality Inlets

Designer: CYNTHIA GABALDON
Company: URS CORP
Date: 6/3/11
Project: VHS
Location: Temecula, Ca E-40

1. Determine Design Flow Rate (Use Worksheet 2)	Q_{BMP} = .104 cfs
2. Water Quality Inlet Manufacturer Name Model Flow Capacity of Model Please include a technical sheet from the manufacturer with information on this model.	Make MWS Model Linear Grate-141 Capacity .15 cfs Bypass = 1.28

Notes:

MWS H

Worksheet 2

Design Procedure Form for Design Flow

Uniform Intensity Design Flow

Designer: CYNTHIA GABALDON
Company: URS CORP
Date: 6/3/11
Project: UHS
Location: Temecula, Ca E-23 MWS C

1. Determine Impervious Percentage		
a. Determine total tributary area	A_{total} = .78 acres	(1)
b. Determine Impervious %	i = 100 %	(2)
2. Determine Runoff Coefficient Values Use Table 4 and impervious % found in step 1		
a. A Soil Runoff Coefficient	C_a =	(3)
b. B Soil Runoff Coefficient	C_b = .90	(4)
c. C Soil Runoff Coefficient	C_c =	(5)
d. D Soil Runoff Coefficient	C_d =	(6)
3. Determine the Area decimal fraction of each soil type in tributary area		
a. Area of A Soil / (1) =	A_a =	(7)
b. Area of B Soil / (1) =	A_b = 1.0	(8)
c. Area of C Soil / (1) =	A_c =	(9)
d. Area of D Soil / (1) =	A_d =	(10)
4. Determine Runoff Coefficient		
a. C = (3)x(7) + (4)x(8) + (5)x(9) + (6)x(10) =	C = .90	(11)
5. Determine BMP Design flow		
a. Q_{BMP} = C x I x A = (11) x 0.2 x (1)	Q_{BMP} = .086 $\frac{ft^3}{s}$	(12)

Worksheet 11

Design Procedure Form for Water Quality Inlets

Designer: CYNTHIA GABALDON
Company: URS CORP
Date: 6/3/11
Project: UHS
Location: Temecula, Ca E-23

1. Determine Design Flow Rate (Use Worksheet 2)	Q_{BMP} = .086 cfs Q100 = 1.7
2. Water Quality Inlet Manufacturer Name Model Flow Capacity of Model Please include a technical sheet from the manufacturer with information on this model.	Make MWS Model Linear V6-curb Capacity .15 cfs Bypass=2.9

Notes: MWS C

Worksheet 2

Design Procedure Form for Design Flow

Uniform Intensity Design Flow

Designer: CYNTHIA GABALDON
Company: URS CORP
Date: 6/3/11
Project: UHS
Location: Temecula, Ca E-22 MWS G

1. Determine Impervious Percentage		
a. Determine total tributary area	A_{total} = 1.22 acres	*(1)*
b. Determine Impervious %	i = 100 %	*(2)*
2. Determine Runoff Coefficient Values Use Table 4 and impervious % found in step 1		
a. A Soil Runoff Coefficient	C_a =	*(3)*
b. B Soil Runoff Coefficient	C_b = .90	*(4)*
c. C Soil Runoff Coefficient	C_c =	*(5)*
d. D Soil Runoff Coefficient	C_d =	*(6)*
3. Determine the Area decimal fraction of each soil type in tributary area		
a. Area of A Soil / *(1)* =	A_a =	*(7)*
b. Area of B Soil / *(1)* =	A_b = 1.0	*(8)*
c. Area of C Soil / *(1)* =	A_c =	*(9)*
d. Area of D Soil / *(1)* =	A_d =	*(10)*
4. Determine Runoff Coefficient		
a. C = *(3)*x*(7)* + *(4)*x*(8)* + *(5)*x*(9)* + *(6)*x*(10)* =	C = .90	*(11)*
5. Determine BMP Design flow		
a. Q_{BMP} = C x I x A = *(11)* x 0.2 x *(1)*	Q_{BMP} = .219 $\frac{ft^3}{s}$	*(12)*

Worksheet 11

Design Procedure Form for Water Quality Inlets

Designer: CYNTHIA GABALDON
Company: URS CORP
Date: 6/3/11
Project: VHS
Location: Temecula, Ca E-22

1. Determine Design Flow Rate (Use Worksheet 2)	Q_{BMP} = .219 cfs Q_{100} = 4.5
2. Water Quality Inlet Manufacturer Name Model Flow Capacity of Model Please include a technical sheet from the manufacturer with information on this model.	Make MWS Model Linear Grate - 221 Capacity .29 cfs Bypass = 4.51

Notes:

MWS "G"

Worksheet 2

Design Procedure Form for Design Flow

Uniform Intensity Design Flow

Designer: CYNTHIA GABALDON
Company: URS CORP
Date: 6/3/11
Project: VHS
Location: Temecula, Ca E-38 BMWS-E

1. Determine Impervious Percentage		
a. Determine total tributary area	A_{total} = 1.06 acres	*(1)*
b. Determine Impervious %	i = 100 %	*(2)*
2. Determine Runoff Coefficient Values Use Table 4 and impervious % found in step 1		
a. A Soil Runoff Coefficient	C_a =	*(3)*
b. B Soil Runoff Coefficient	C_b = .90	*(4)*
c. C Soil Runoff Coefficient	C_c =	*(5)*
d. D Soil Runoff Coefficient	C_d =	*(6)*
3. Determine the Area decimal fraction of each soil type in tributary area		
a. Area of A Soil / *(1)* =	A_a =	*(7)*
b. Area of B Soil / *(1)* =	A_b = 1.0	*(8)*
c. Area of C Soil / *(1)* =	A_c =	*(9)*
d. Area of D Soil / *(1)* =	A_d =	*(10)*
4. Determine Runoff Coefficient		
a. C = *(3)*x*(7)* + *(4)*x*(8)* + *(5)*x*(9)* + *(6)*x*(10)* =	C = .90	*(11)*
5. Determine BMP Design flow		
a. Q_{BMP} = C x I x A = *(11)* x 0.2 x *(1)*	Q_{BMP} = .191 $\frac{ft^3}{s}$	*(12)*

Worksheet 11

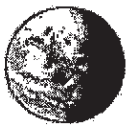
Design Procedure Form for Water Quality Inlets

Designer: CYNTHIA GABALDON
Company: URS CORP
Date: 6/3/11
Project: VHS
Location: Temecula, Ca E-38

1. Determine Design Flow Rate (Use Worksheet 2)	Q_{BMP} = 1.91 cfs Q_{100} = n.i.
2. Water Quality Inlet Manufacturer Name Model Flow Capacity of Model Please include a technical sheet from the manufacturer with information on this model.	Make MWS Model Linear Grate Capacity 1.29 cfs Bypass = 4.51 cfs.

Notes:

MWS E



"Zach Kent"
<zkent@biocleanenvironmental .net>
12/14/2010 01:02 PM

To <Margie_De_Laurell@URSCorp.com>
cc <cynthia_gabaldon@urscorp.com>, <toni_gullace@urscorp.com>, <Lisa_Berman@URSCorp.com>, "John Hayden"
bcc
Subject RE: UHST - MWS, phase 1 DAM & BMP site plan

PHASE I

Hello Margie,

Attached are the updated drawings. Each drawing has under the title the drainage areas it applies to:

W-1 - MWS Linear - 14' Curb Type MWS B

W-9 - MWS Linear - 14' Curb Type MWS A

E-4 - MWS Linear - 14' Curb Type MWS F

E-22 - MWS Linear - 22' Grate Type MWS G

E-23 - MWS Linear - 14' UG Curb Type (this is an underground unit, meaning it has a solid concrete ADA compliant lid, so it can be placed under the sidewalk) MWS C

E-28 - MWS Linear - 14' Curb Type MWS D

E-38 - MWS Linear - 22' Grate Type MWS E

E-39 - MWS Linear - 14' Grate Type MWS F

E-40 - MWS Linear - 14' Grate Type MWS H

We reviewed the Q100 and Qbmp flow rates for each area confirm the size and type of the system can treat and bypass flows appropriately. We assumed the treatment intensity is .2 in/hr.

All drawings have been changed to show 12" diameter outflow pipes.

Let us know if you need anything else.

Sincerely,

Zach J Kent, CISEC
Stormwater Engineer
zkent@biocleanenvironmental.com
zach@modularwetlands.com

Bio Clean Environmental Services, Inc.
Modular Wetland Systems, Inc.
P.O Box 869, Oceanside, CA 92049
Phone: 760.433.7640

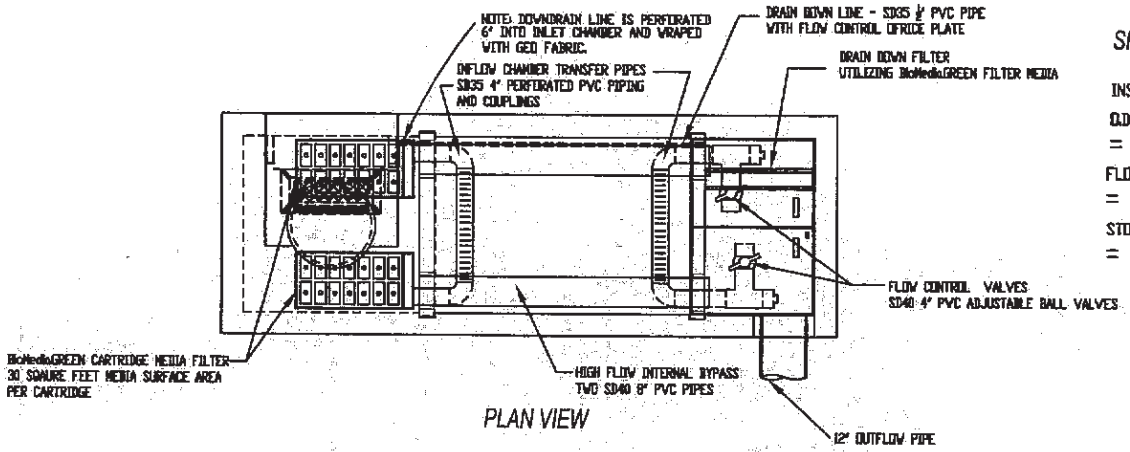
MODULAR WETLAND SYSTEMS - LINEAR CURB TYPE(L)
WATERSHED W-1, W-9, E-4, AND E-28

*FLOW BASED DESIGN

FLOW RATES

PRIMARY PEAK
TREATMENT FLOW RATE
= .15 CFS OR 67 GPM

PEAK BYPASS FLOW RATE
= 2.90 CFS OR 1,302 GPM



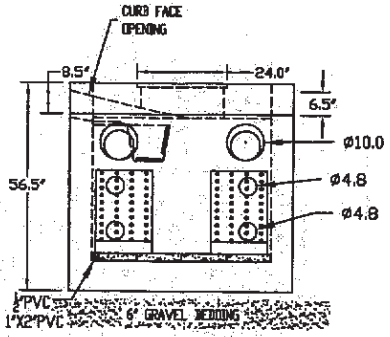
PLAN VIEW

SPECIFICATIONS

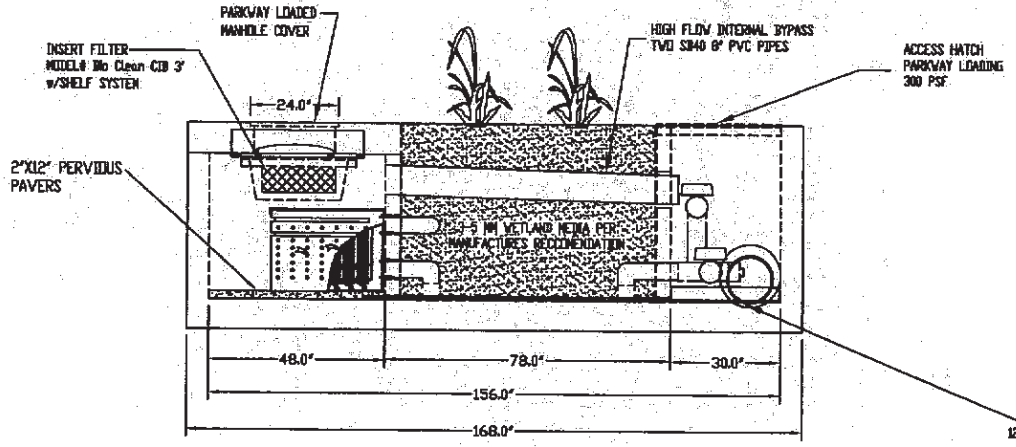
INSTALL AT SURFACE
O.D. DIMENSIONS
= 14' X 5' X 4.71'
FLOW LINE (6" CURB) TO INVERT OUT
= 3.51'
STORAGE CAPACITY
= 1000 LBS OR 23.5 CF

CONFIGURATION NOTES

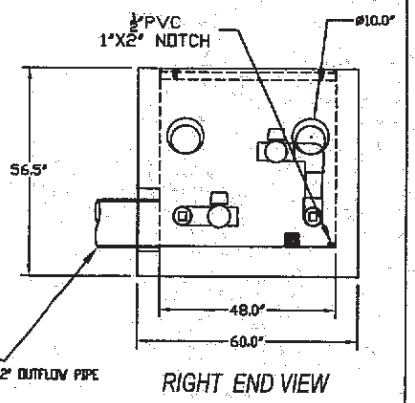
- INSTALL ONLINE IN FLOW BY CONDITION.
- CURB OPENING IN MODULAR WETLAND WILL BE THREE FEET WIDE. LOCAL DEPRESSION CAN VARY PER ENGINEER'S RECOMMENDATION.



LEFT END VIEW



ELEVATION VIEW



RIGHT END VIEW

INSTALLATION NOTES:

1. INSTALL UNIT ON LEVEL BED OF GRAVEL OF AT LEAST 6" IN DEPTH.
2. CONCRETE 28 DAY COMPRESSIVE STRENGTH fc=5,000 PSI.
3. REINFORCING:ASTM A-615, GRADE 60.
4. RATED FOR PARKWAY LOADING 300 PSF.
5. ALL WALLS ARE 6" THICK, BAFFLES ARE 4" THICK BOTTOM 8" THICK, TOP 8.5" THICK.
6. JOINT SEALANT: BUTYL RUBBER SS-S-00210

Patent No. 7,425,262

MODULAR WETLAND SYSTEMS INC.
P.O. BOX 869
OCEANSIDE, CA 92049
www.ModularWetlands.com

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	NAME	DATE
DRAWN	D.R.F.	6-03-09
EDITED		

COMMENTS:
TEMECULA HOSPITAL

TITLE: MWS LINEAR - CURB TYPE

SIZE	DWG. NO.	REV
A	MWS-L-C	

SCALE 1:50 | UNITS = INCHES | SHEET 1 OF 1

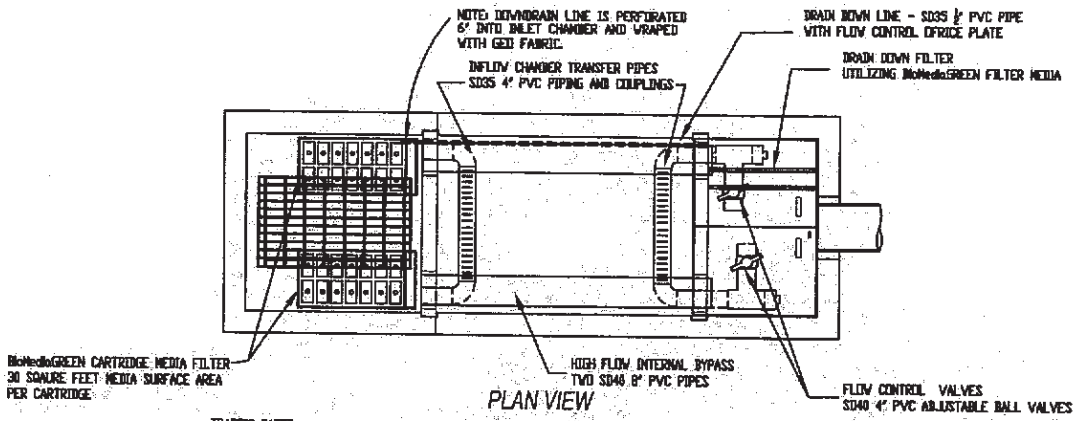
MODULAR WETLAND SYSTEMS - LINEAR GRATE TYPE
WATERSHED E-39 AND E-40

*FLOW BASED DESIGN

FLOW RATES

PRIMARY PEAK
TREATMENT FLOW RATE
= .15 CFS OR 67 GPM

PEAK BYPASS FLOW RATE
= 4.28 CFS



PLAN VIEW

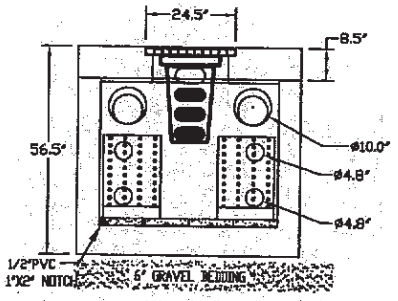
SPECIFICATIONS

INSTALL AT SURFACE

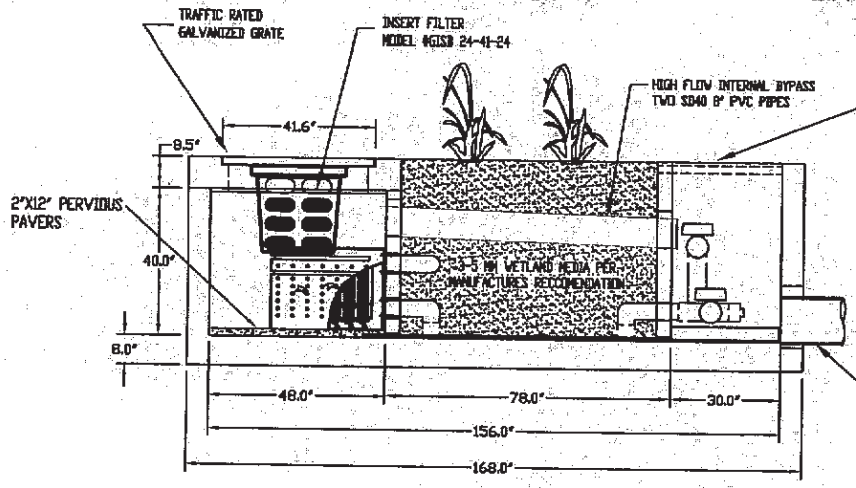
O.D. DIMENSIONS
= 14' X 5' X 4.71'

TOP OF GRATE TO INVERT OUT
= 4.04'

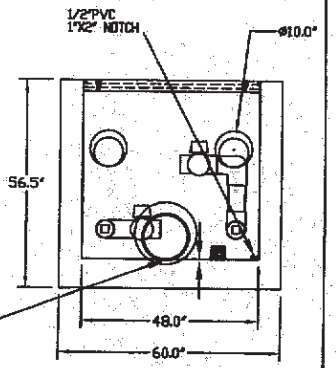
STORAGE CAPACITY
= 1000 LBS OR 23.5 CF



LEFT END VIEW



ELEVATION VIEW



RIGHT END VIEW

INSTALLATION NOTES:

1. INSTALL UNIT ON LEVEL BED OF GRAVEL OF AT LEAST 6" IN DEPTH.
2. CONCRETE 28 DAY COMPRESSIVE STRENGTH f'c=5,000 PSI.
3. REINFORCING: ASTM A-615, GRADE 60.
4. RATED FOR PARKWAY LOADING 300 PSF.
5. ALL WALLS ARE 6" THICK, BAFFLES ARE 4" THICK BOTTOM 8" THICK, TOP 10" THICK.
6. JOINT SEALANT: BUTYL RUBBER SS-S-00210

Patent No. 7,425,262

MODULAR WETLAND SYSTEMS INC.
P.O. BOX 869
OCEANSIDE, CA 92049
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	NAME	DATE
DRAWN	D.R.F.	6-03-09
EDITED		

COMMENTS:
TEMECULA HOSPITAL

TITLE: MWS LINEAR - GRATE TYPE

SIZE	DWG. NO.	REV
A	MWS-L-C	

SCALE 150 | UNITS = INCHES | SHEET 1 OF 1

MODULAR WETLAND SYSTEMS - LINEAR UG CURB TYPE

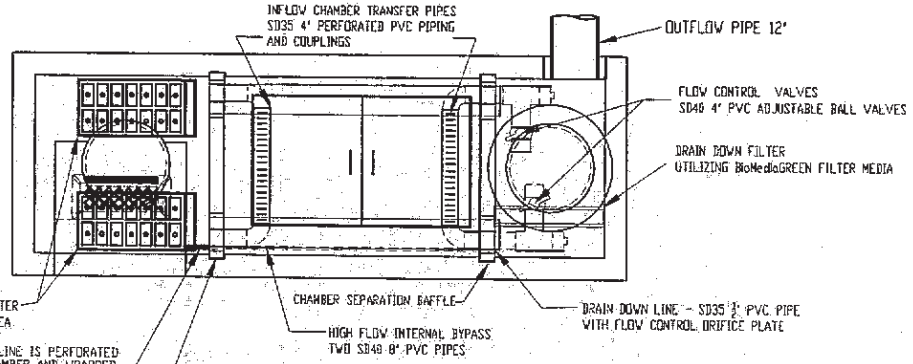
WATERSHED E-23

*FLOW BASED DESIGN

FLOW RATES

PRIMARY PEAK
TREATMENT FLOW RATE
= .15 CFS OR 67 GPM

PEAK BYPASS FLOW RATE
= 2.90 CFS OR 1,302 GPM



PLAN VIEW

SPECIFICATIONS

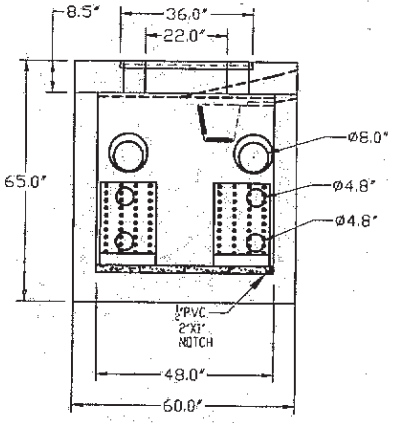
INSTALL AT SURFACE

O.D. DIMENSIONS
= 14' X 5' X 4.71'

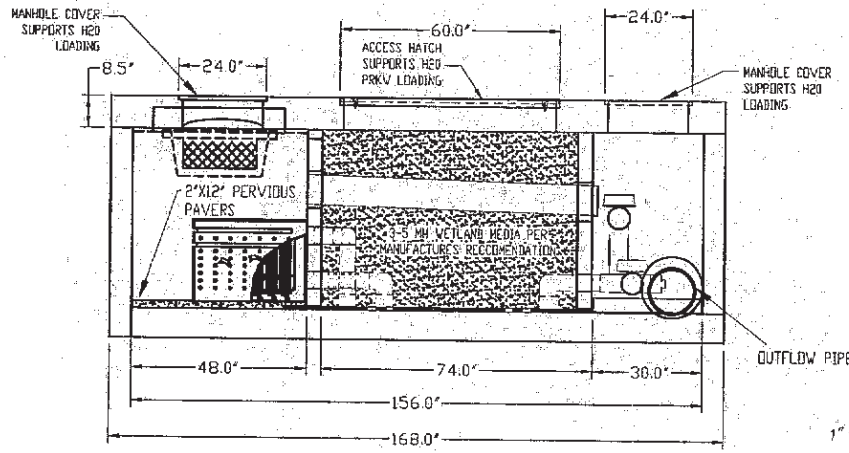
STORAGE CAPACITY
= 1000 LBS OR 23.5 CF

CONFIGURATION NOTES

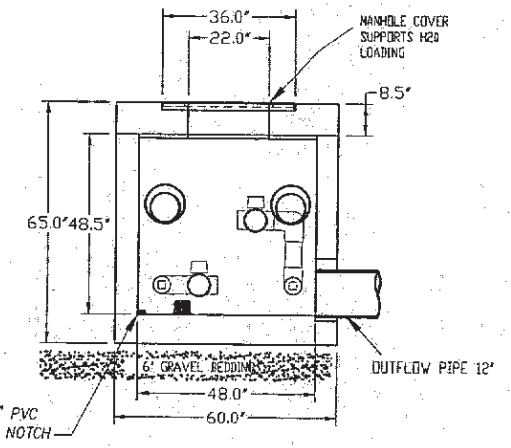
- INSTALL ONLINE IN FLOW BY CONDITION.
- CURB OPENING IN MODULAR WETLAND WILL BE THREE FEET WIDE. LOCAL DEPRESSION CAN VARY PER ENGINEER'S RECOMMENDATION.
- ADA COMPLIANT LIDS WILL BE USED



RIGHT END VIEW



ELEVATION VIEW



LEFT END VIEW

INSTALLATION NOTES:

1. INSTALL UNIT ON LEVEL BED OF GRAVEL OF AT LEAST 6" IN DEPTH
2. CONCRETE 28 DAY COMPRESSIVE STRENGTH fc=5,000 PSI
3. REINFORCING: ASTM A-615, GRADE 60
4. SUPPORTS AN H20 LOADING AS INDICATED BY AASHTO
5. ALL WALLS ARE 6" THICK, BAFFLES ARE 4" THICK BOTTOM 8" THICK, TOP 10" THICK
6. JOINT SEALANT: BUTYL RUBBER SS-S-00210
7. MUST BE ADA COMPLIANT

Patent No. 7,425,262

PATENT PENDING

MODULAR WETLAND SYSTEMS INC.
P.O. BOX 869
OCEANSIDE, CA 92049
www.ModularWetlands.com

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	NAME	DATE
DRAWN	D.FOWLER	6-03-09
EDITED		

COMMENTS:
TEMECULA HOSPITAL

TITLE: MWS LINEAR UG CURB TYPE

SIZE	DWG NO.	REV
A	MWS-L-C	

SCALE 1:50 | UNITS = INCHES | SHEET 1 OF 1

MODULAR WETLAND SYSTEMS – LINEAR GRATE TYPE

WATERSHED E-22 AND E-38

MODULAR WETLANDS™

*FLOW BASED DESGIN

FLOW RATES

PRIMARY PEAK
TREATMENT FLOW RATE
= .29 CFS OR 130 GPM

PEAK BYPASS FLOW RATE
= 4.51 CFS

BioMediaGREEN CARTRIDGE MEDIA FILTER
30 SQUARE FEET MEDIA SURFACE AREA
PER CARTRIDGE

SPECIFICATIONS

INSTALL AT SURFACE

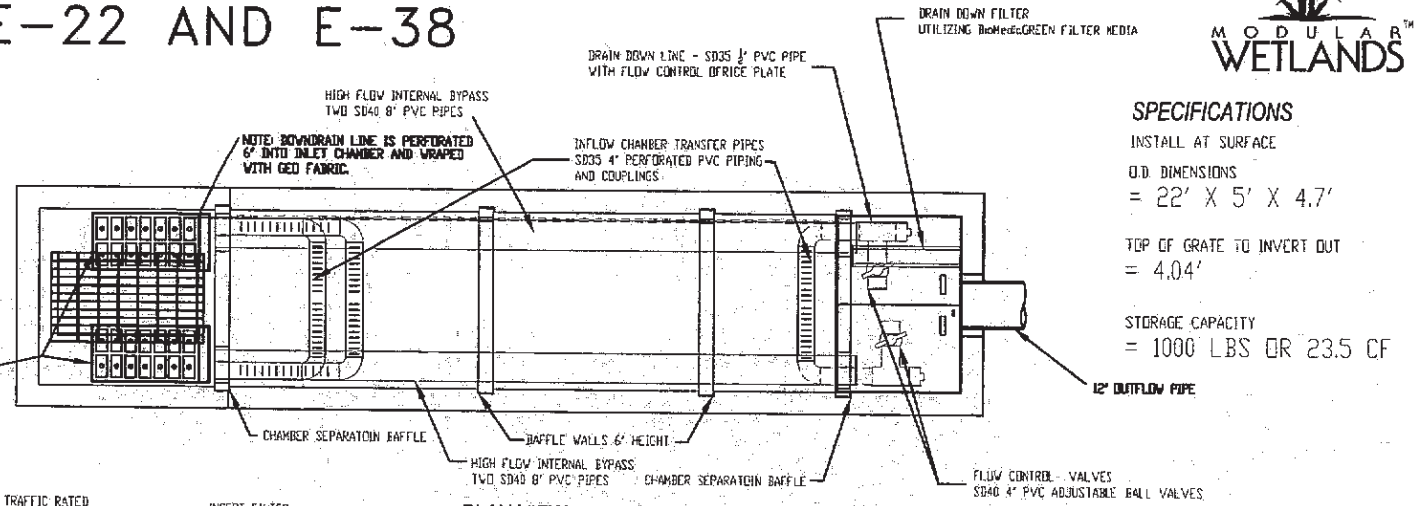
O.D. DIMENSIONS
= 22' X 5' X 4.7'

TOP OF GRATE TO INVERT OUT
= 4.04'

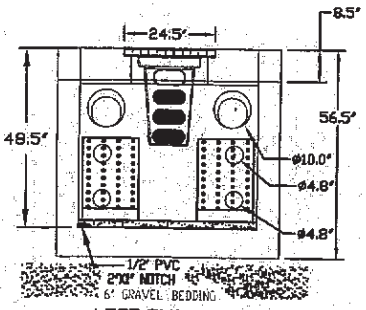
STORAGE CAPACITY
= 1000 LBS OR 23.5 CF

CONFIGURATION NOTES

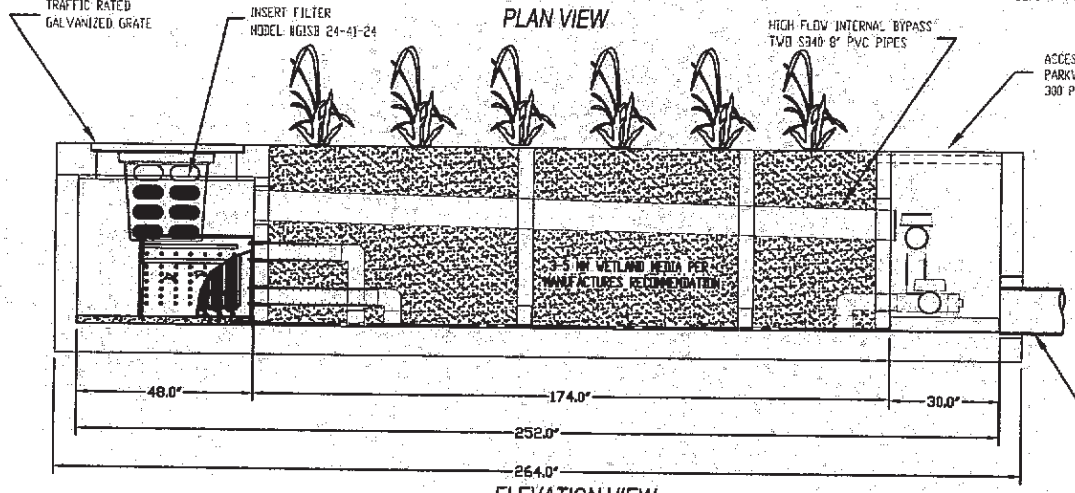
- INSTALL IN SUMP CONFIGURATION TO ACCEPT WATER FROM ROADWAY.
- SYSTEM WILL BYPASS Q100 STORM EVENT.



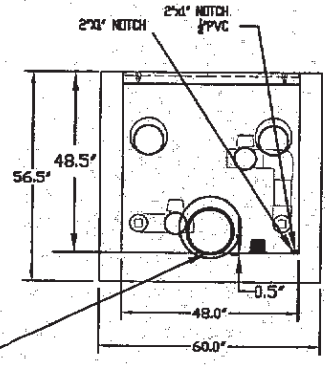
PLAN VIEW



LEFT END VIEW



ELEVATION VIEW



RIGHT END VIEW

INSTALLATION NOTES:

1. INSTALL UNIT ON LEVEL BED OF GRAVEL OF AT LEAST 6" IN DEPTH.
2. CONCRETE 28 DAY COMPRESSIVE STRENGTH fc=5,000 PSI.
3. REINFORCING:ASTM A-615, GRADE 60.
4. SUPPORTS AN H20 LOADING AS INDICATED BY AASHTO.
5. ALL WALLS ARE 6" THICK, BAFFLES ARE 4" THICK BOTTOM 8" THICK, TOP 10" THICK
6. JOINT SEALANT: BUTYL RUBBER SS-S-00210

Patent No. 7,425,262

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OCEANSIDE, CA 92049
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	NAME	DATE
DRAWN	JJC	7-15-09
EDITED		

COMMENTS:
TEMECULA HOSPITAL

TITLE: MWS LINEAR – GRATE TYPE

SIZE	DWG. NO.	REV
A	MWS-L-G	

SCALE 1:50 | UNITS = INCHES | SHEET 1 OF 1

Worksheet 2

Design Procedure Form for Design Flow

Uniform Intensity Design Flow

Designer: CYNTHIA GABALDON
Company: URS CORP
Date: 6/3/11
Project: VHS
Location: Temecula Ca E-8 Strip "D"

1. Determine Impervious Percentage		
a. Determine total tributary area	A_{total} = 1.38 acres	*(1)*
b. Determine Impervious %	i = 60 %	*(2)*
2. Determine Runoff Coefficient Values Use Table 4 and impervious % found in step 1		
a. A Soil Runoff Coefficient	C_a =	*(3)*
b. B Soil Runoff Coefficient	C_b = .60	*(4)*
c. C Soil Runoff Coefficient	C_c =	*(5)*
d. D Soil Runoff Coefficient	C_d =	*(6)*
3. Determine the Area decimal fraction of each soil type in tributary area		
a. Area of A Soil / *(1)* =	A_a =	*(7)*
b. Area of B Soil / *(1)* =	A_b = 1.0	*(8)*
c. Area of C Soil / *(1)* =	A_c =	*(9)*
d. Area of D Soil / *(1)* =	A_d =	*(10)*
4. Determine Runoff Coefficient		
a. C = *(3)*x*(7)* + *(4)*x*(8)* + *(5)*x*(9)* + *(6)*x*(10)* =	C = .60	*(11)*
5. Determine BMP Design flow		
a. Q_{BMP} = C x I x A = *(11)* x 0.2 x *(1)*	Q_{BMP} = .046 $\frac{ft^3}{s}$	*(12)*

Worksheet 10

Design Procedure Form for Filter Strip

Designer: CYNTHIA GABALDON
Company: URS CORP.
Date: 6/3/11
Project: CHS
Location: Temecula, Ca E-8

1. Determine Design Flow (Use Worksheet 2)	Q_{BMP} = 1.046 cfs
2. Design Width $W_m = (Q_{BMP})/0.005$ cfs/ft	W_m = 9 ft
3. Design Length (15 ft minimum)	L_m = 30 ft
4. Design Slope (4 % maximum)	S_D = 2.0 %
5. Flow Distribution (check type used or describe "other")	✓ slotted curbing ___ Modular Block Porous Pavement ___ Level Spreader ✓ other
6. Vegetation (describe)	grasses
5. Outflow Collection (check type used or describe "other")	___ Grass Swale ___ Street Gutter ✓ Storm Drain ___ Underdrain ___ Other

Notes: Strip "D"

Worksheet 2

Design Procedure Form for Design Flow

Uniform Intensity Design Flow

Designer: CYNTHIA GABALDON
Company: URS, CORP.
Date: 6/3/11
Project: VHS
Location: Temecula Hosp. E-14 Strip E

1. Determine Impervious Percentage		
a. Determine total tributary area	A_{total} = .83 acres	(1)
b. Determine Impervious %	i = 80 %	(2)
2. Determine Runoff Coefficient Values Use Table 4 and impervious % found in step 1		
a. A Soil Runoff Coefficient	C_a =	(3)
b. B Soil Runoff Coefficient	C_b = .75	(4)
c. C Soil Runoff Coefficient	C_c =	(5)
d. D Soil Runoff Coefficient	C_d =	(6)
3. Determine the Area decimal fraction of each soil type in tributary area		
a. Area of A Soil / (1) =	A_a =	(7)
b. Area of B Soil / (1) =	A_b = 1.0	(8)
c. Area of C Soil / (1) =	A_c =	(9)
d. Area of D Soil / (1) =	A_d =	(10)
4. Determine Runoff Coefficient		
a. C = (3)x(7) + (4)x(8) + (5)x(9) + (6)x(10) =	C = .75	(11)
5. Determine BMP Design flow		
a. Q_{BMP} = C x I x A = (11) x 0.2 x (1)	Q_{BMP} = .12 $\frac{ft^3}{s}$	(12)

Worksheet 10

Design Procedure Form for Filter Strip

Designer: CYNTHIA GABALDON
Company: URS CORP
Date: 6/3/11
Project: VHS
Location: Temecula Hosp E-14

1. Determine Design Flow (Use Worksheet 2)	Q_{BMP} = .12 cfs
2. Design Width $W_m = (Q_{BMP})/0.005$ cfs/ft	W_m = 25 ft
3. Design Length (15 ft minimum)	L_m = 30 ft
4. Design Slope (4 % maximum)	S_D = 2.0 %
5. Flow Distribution (check type used or describe "other")	___ slotted curbing ___ Modular Block Porous Pavement ___ Level Spreader ✓ other
6. Vegetation (describe)	grasses
5. Outflow Collection (check type used or describe "other")	___ Grass Swale ___ Street Gutter ✓ Storm Drain ___ Underdrain ___ Other

Notes: Strip E

Worksheet 2

Design Procedure Form for Design Flow

Uniform Intensity Design Flow

Designer: CYNTHIA GABALDON
Company: URS CORP
Date: 6/3/11
Project: UHS
Location: Temecula, Ca. E-21 Strip F

1. Determine Impervious Percentage		
a. Determine total tributary area	A_{total} = 1.5 acres	*(1)*
b. Determine Impervious %	i = 0 %	*(2)*
2. Determine Runoff Coefficient Values Use **Table 4** and impervious % found in step 1		
a. A Soil Runoff Coefficient	C_a =	*(3)*
b. B Soil Runoff Coefficient	C_b = .14	*(4)*
c. C Soil Runoff Coefficient	C_c =	*(5)*
d. D Soil Runoff Coefficient	C_d =	*(6)*
3. Determine the Area decimal fraction of each soil type in tributary area		
a. Area of A Soil / *(1)* =	A_a =	*(7)*
b. Area of B Soil / *(1)* =	A_b = 1.0	*(8)*
c. Area of C Soil / *(1)* =	A_c =	*(9)*
d. Area of D Soil / *(1)* =	A_d =	*(10)*
4. Determine Runoff Coefficient		
a. C = *(3)*x*(7)* + *(4)*x*(8)* + *(5)*x*(9)* + *(6)*x*(10)* =	C = .14	*(11)*
5. Determine BMP Design flow		
a. Q_{BMP} = C x I x A = *(11)* x 0.2 x *(1)*	Q_{BMP} = .101 $\frac{ft^3}{s}$	*(12)*

Worksheet 10

Design Procedure Form for Filter Strip

Designer: CYNTHIA GABALDON
Company: URS CORP
Date: 6/3/11
Project: DHS
Location: Temecula, Ca E-21

1. Determine Design Flow (Use Worksheet 2)	Q_{BMP} = .01 cfs
2. Design Width $W_m = (Q_{BMP})/0.005$ cfs/ft	W_m = 3 ft
3. Design Length (15 ft minimum)	L_m = 42 ft
4. Design Slope (4 % maximum)	S_D = 2 %
5. Flow Distribution (check type used or describe "other")	___ slotted curbing ___ Modular Block Porous Pavement ___ Level Spreader X other
6. Vegetation (describe)	grasses
5. Outflow Collection (check type used or describe "other")	___ Grass Swale ___ Street Gutter X Storm Drain ___ Underdrain ___ Other

Notes: Strip F

Worksheet 2

Design Procedure Form for Design Flow

Uniform Intensity Design Flow

Designer: CYNTHIA GABALDON
Company: URS CORP
Date: 6/3/11
Project: UHS
Location: Temecula, Ca E-33 Strip 6

1. Determine Impervious Percentage		
a. Determine total tributary area	A_{total} = 1.26 acres	*(1)*
b. Determine Impervious %	i = 0 %	*(2)*
2. Determine Runoff Coefficient Values Use Table 4 and impervious % found in step 1		
a. A Soil Runoff Coefficient	C_a =	*(3)*
b. B Soil Runoff Coefficient	C_b = .14	*(4)*
c. C Soil Runoff Coefficient	C_c =	*(5)*
d. D Soil Runoff Coefficient	C_d =	*(6)*
3. Determine the Area decimal fraction of each soil type in tributary area		
a. Area of A Soil / *(1)* =	A_a =	*(7)*
b. Area of B Soil / *(1)* =	A_b = 1.0	*(8)*
c. Area of C Soil / *(1)* =	A_c =	*(9)*
d. Area of D Soil / *(1)* =	A_d =	*(10)*
4. Determine Runoff Coefficient		
a. C = *(3)*x*(7)* + *(4)*x*(8)* + *(5)*x*(9)* + *(6)*x*(10)* =	C = .14	*(11)*
5. Determine BMP Design flow		
a. Q_{BMP} = C x I x A = *(11)* x 0.2 x *(1)*	Q_{BMP} = .04 $\frac{ft^3}{s}$	*(12)*

Worksheet 10

Design Procedure Form for Filter Strip

Designer: Cynthia Caballero
Company: VRS, LORD
Date: 6/3/11
Project: VHS
Location: Temecula Ca E-33

1. Determine Design Flow (Use Worksheet 2)	Q_{BMP} = 1.07 cfs
2. Design Width $W_m = (Q_{BMP})/0.005$ cfs/ft	W_m = 7 ft
3. Design Length (15 ft minimum)	L_m = 35 ft
4. Design Slope (4 % maximum)	S_D = 2 %
5. Flow Distribution (check type used or describe "other")	___ slotted curbing ___ Modular Block Porous Pavement ___ Level Spreader ✓ other grass
6. Vegetation (describe)	grass
5. Outflow Collection (check type used or describe "other")	___ Grass Swale ___ Street Gutter ✓ Storm Drain ___ Underdrain ___ Other

Notes: Strip 6

Worksheet 2

Design Procedure Form for Design Flow

Uniform Intensity Design Flow

Designer: CYNTHIA BABALDON
Company: URS CORP
Date: 6/3/11
Project: VHS
Location: Temecula, Ca E-41, W-13 Strip C

1. Determine Impervious Percentage		
a. Determine total tributary area	A_{total} = .39 & .49 acres	(1)
b. Determine Impervious %	i = 0 %	(2)
2. Determine Runoff Coefficient Values Use **Table 4** and impervious % found in step 1		
a. A Soil Runoff Coefficient	C_a =	(3)
b. B Soil Runoff Coefficient	C_b = .14	(4)
c. C Soil Runoff Coefficient	C_c =	(5)
d. D Soil Runoff Coefficient	C_d =	(6)
3. Determine the Area decimal fraction of each soil type in tributary area		
a. Area of A Soil / *(1)* =	A_a =	(7)
b. Area of B Soil / *(1)* =	A_b = 1.0	(8)
c. Area of C Soil / *(1)* =	A_c =	(9)
d. Area of D Soil / *(1)* =	A_d =	(10)
4. Determine Runoff Coefficient		
a. C = *(3)*x*(7)* + *(4)*x*(8)* + *(5)*x*(9)* + *(6)*x*(10)* =	C = .14	(11)
5. Determine BMP Design flow		
a. Q_{BMP} = C x I x A = *(11)* x 0.2 x *(1)*	Q_{BMP} = .01 & .01 $\frac{ft^3}{s}$	(12)

Worksheet 10

Design Procedure Form for Filter Strip

Designer: CYNTHIA GABALDON
Company: VRS CORP
Date: 6/3/11
Project: VHS
Location: Temecula, Ca

1. Determine Design Flow (Use Worksheet 2)	Q_{BMP} = .01 ~~.01~~ cfs
2. Design Width $W_m = (Q_{BMP})/0.005$ cfs/ft	W_m = 2 ~~3~~ ft
3. Design Length (15 ft minimum)	L_m = 50 ~~25~~ ft
4. Design Slope (4 % maximum)	S_D = 2 %
5. Flow Distribution (check type used or describe "other")	___ slotted curbing ___ Modular Block Porous Pavement ___ Level Spreader Y other ___
6. Vegetation (describe)	Grass
5. Outflow Collection (check type used or describe "other")	___ Grass Swale ___ Street Gutter Y Storm Drain ___ Underdrain ___ Other ___

Notes: Strip C is wider & longer than necessary. Strip C.

Appendix G

Water Quality Management Plan and Stormwater BMP Transfer, Access, and Maintenance Agreement

June 2011

Biofiltration Strip Calculation - Phase I

Design:

Water Quality Design Flow:

$Q_{BMP} = C \times I \times A$

Soil Type = B

Area	Acre	% Impervious	Runoff Coefficient[1]	Rainfall Intensity[1] (in/hr)	Q_{BMP} (cfs)	Design Width (ft)	Minimum Strip Length (ft)	Design Swale Length (ft)	Length Check	Strip ID
E-8	0.38	60	0.60	0.2	0.05	9	15	30	**OK**	Strip D
E-14	0.83	80	0.75	0.2	0.12	25	15	30	**OK**	Strip E
E-21	0.5	0	0.14	0.2	0.01	3	15	42	**OK**	Strip F
E-33	1.26	0	0.14	0.2	0.04	7	15	35	**OK**	Strip G
E-41	0.39	0	0.14	0.2	0.01	2	15	50	**OK**	Strip C
W-13	0.49	0	0.14	0.2	0.01	3	15	25	**OK**	Strip C

1. Based on Table 4 and Worksheet 10 from Riverside County Water Quality Management Plan

RECORDING REQUESTED BY:

CITY OF TEMECULA

AND WHEN RECORDED MAIL TO:

CITY OF TEMECULA
ATTN: Department of Public Works
43200 Business Park Drive
Temecula, CA 92589

SPACE ABOVE THIS LINE FOR RECORDER'S USE

OPERATIONS AND MAINTENANCE AGREEMENT

June 2011

Water Quality Management Plan and Stormwater BMP Transfer, Access, and Maintenance Agreement

OWNER NAME: Universal Health Services

PROPERTY ADDRESS: 31700 Temecula Parkway, Temecula, County of Riverside, CA

APNs: 959-080-001, 959-080-002, 959-080-003, 959-080-004, 959-080-007, 959-080-008, 959-080-009, and 959-080-010

THIS AGREEMENT is made and entered into in _____, California, this _____ day of _____, 20_____ by and between UNIVERSAL HEALTH SERVICES, herein after referred to as "Owner", and the CITY OF TEMECULA, a municipal corporation, located in the County of Riverside, State of California hereinafter referred to as "City";

WHEREAS, the Owner owns real property ("Property) in the City of Temecula, County of Riverside, State of California, more specifically described in Exhibit "A" and depicted in Exhibit "B", each of which exhibits is attached hereto and incorporated herein by this reference;

WHEREAS, at the time of initial approval of development project known as:

Temecula Medical Center, within the Property described herein, the City required the project to employ Best Management Practices, hereinafter referred to as "BMPs," to minimize pollutants in urban runoff;

WHEREAS, the Owner has chosen to install and/or implement BMPs as described in the Water Quality Management Plan, on file with the City, hereinafter referred to as "WQMP," to minimize pollutants in urban runoff and to minimize other adverse impacts of urban runoff;

WHEREAS, said WQMP has been certified by the Owner and reviewed and accepted by the City;

WHEREAS, said BMPs, with installation and/or implementation on private property and draining only private property, are part of a private facility with all maintenance or replacement, therefore, the sole responsibility of the Owner in accordance with the terms of this Agreement;

WHEREAS, the Owner is aware that periodic and continuous maintenance, including, but not necessarily limited to, filter material replacement and sediment removal, is required to assure peak performance of all BMPs in the WQMP and that, furthermore, such maintenance activity will require compliance with all Local, State, or Federal laws and regulations, including those pertaining to confined space and waste disposal methods, in effect at the time such maintenance occurs;

NOW THEREFORE, it is mutually stipulated and agreed as follows:

1. Owner hereby provides the City of Temecula designee complete access, of any duration, to the BMPs and their immediate vicinity at any time, upon reasonable notice, or in the event of emergency, as determined by the City's Engineer, no advance notice, for the purpose of inspection, sampling, testing of the Device, and in case of emergency to direct all necessary repairs or other preventative measures at owner's expense as provided in paragraph 3 below. City shall make every effort at all times to minimize or avoid interference with Owner's use of the Property.

2. Owner shall use its best efforts diligently to maintain all BMPs in a manner assuring peak performance at all times. All reasonable precautions shall be exercised by Owner and Owner's representative or contractor in the removal and extraction of any material(s) from the BMPs and the ultimate disposal of the material(s) in a manner consistent with all relevant laws and regulations in effect at the time. As may be requested from time to tome by the City, the Owner shall provide the City with documentation identifying the material(s) removed, the quantity, and disposal destination.

3. In the event Owner, or its successors or assigns, fails to accomplish the necessary maintenance contemplated by this Agreement, within five (5) days of being given written notice by the City, the City is hereby authorized to cause any maintenance necessary to be done and charge the entire cost and expense to the Owner or Owner's successors or assigns, including administrative costs, attorneys fees and interest thereon at the maximum rate authorized by the Civil Code from the Date of the notice of expense until paid in full.

4. The City may require the owner to post security in form and for a time period satisfactory to the City to guarantee the performance of the obligations stated herein. Should the Owner fail to perform the obligations under the Agreement, the City may, in the case of a cash bond, act for the Owner using the proceeds from it, or in the case of a surety bond, require the sureties to perform the obligations of the Agreement. As an additional remedy, the City's Engineer may withdraw any previous stormwater-related approval with respect to the property on which BMPs have been installed and/or implemented until such time as Owner repays to City its reasonable costs incurred in accordance with paragraph 3 above.

5. This agreement shall be recorded in the Office of the Recorder of Riverside County, California, at the expense of the Owner and shall constitute notice to all successors and assigns of the title to said Property of the obligation herein set forth, and also a lien in such amount as will fully reimburse the City, including interest as herein above set forth, subject to foreclosure in even of default in payment.

6. In event of legal action occasioned by any default or action of the Owner, or its successors or assigns, then the Owner and its successors or assigns agree(s) to pay all costs incurred by the City in enforcing the terms of this Agreement, including reasonable attorney's fees and costs, and that the same shall become a part of the lien against said Property.

7. It is the intent of the parties hereto that burdens and benefits herein undertaken shall constitute covenants that run with said Property and constitute a lien there against.

8. The obligations herein undertaken shall be binding upon the heirs, successors, executors, administrators and assigns of the parties hereto. The term "Owner" shall include not only the present Owner, but also its heirs, successors, executors, administrators, and assigns. Owner shall notify any successor to title of all or part of the Property about the existence of this Agreement. Owner shall provide such notice prior to such successor obtaining an interest in all or part of the Property. Owner shall provide a copy of such notice to the City at the same time such notice is provided to the successor.

9. Time is of the essence in the performance of this Agreement.

10. Any notice to a party required or called for in this Agreement shall be served in person, or by deposit in the U.S. Mail, first class postage prepaid, to the address set forth below. Notice(s) shall be deemed effective upon receipt, or seventy-two (72) hours after deposit in the U.S. Mail, whichever is earlier. A party may change a notice address only by providing written notice thereof to the other party.

IF TO CITY:

City of Temecula
43200 Business Park Drive
Temecula, CA, 92589-9033

IF TO OWNER:

Universal Health Services
Attention: William Seed
367 South Gulph Road
King of Prussia, PA 19406

IN WITNESS THEREOF, the parties hereto have affixed their signatures as of the date first written above.

OWNER:

_____
PRINTED NAME

_____
SIGNATURE

_____
TITLE

OWNER:

_____
PRINTED NAME

_____
SIGNATURE

_____
TITLE

A notary acknowledgement is required for recordation (attach appropriate acknowledgement).

EXHIBIT A
(Legal Description)

NEED LEGAL DESCRIPTION OF PROPERTY

EXHIBIT B
(Map/Illustration)

The WQMP Site Plan would be provided here.

Appendix H

Phase 1 Environmental Site Assessment
Summary of Site Remediation Conducted and Use Restrictions
(*Not Applicable*)

ADDENDUMS/ REVISIONS

WQIP
2013

Project Specific
Water Quality Management Plan

TEMECULA MEDICAL CENTER
31700 TEMECULA PARKWAY
TEMECULA, CA 92592

Parcel Nos. 959-080-001 – 959-080-004 and
959-080-007 – 959-080-010

DESIGN REVIEW NO. PA10-0194

Prepared for:

Universal Health Services
367 South Gulph Road
King of Prussia, PA 19406
610.768.3300
William Seed, Project Manager
800.347.7750

Prepared by:

URS Corporation
Cynthia Gabaldon, P.E., CPSWQ, CPESC
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909.980.4000

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Dallas, TX 75207
214.741.7777

Bryan Paine, P.E.
2020 E. 1st Street, Suite 400
Santa Ana, CA 92705
714.835.6886

WQMP Preparation/Revision Date:
July 2007, April 2010, December 2010, May 2011, June 2011

Revision Date: July 2013 by Excel Engineering
(Updating number item of BMPs based on Approved Grading Plans only)

PRE-TREATMENT – Flow Based Treatment Control BMPs

Flow based BMP design standards are applicable to BMPs where the rate of flow is the primary factor in pollutant removal efficiency. The storm water quality design flow (Qbmp) must be determined to ensure the pre-treatment BMPs will perform with the storm water quantities calculated for the site. BMP sizing calculations are included in Appendix F.

Rain Garden's runoff from the building roofs will be pre-treated using rain gardens around the buildings. The roof drainage will flow from all roof downspouts to at-grade pipes that will discharge to designed and landscaped rain gardens. The design of the rain gardens was detailed by the landscape architect to have specific plantings which are recommended for pollutant removals. The landscape plans present more details on plant selection. The rain gardens are capable of reducing sediment, total suspended solids (TSS), oxygen demanding substances, nutrients, metals, oil and grease, and bacteria. These rain gardens all discharge to the main treatment BMP – the infiltration basin or gallery.

Phase I will include six rain gardens located to capture the roof runoff. The future building designs are not known at this time however space is available for future gardens.

Modular Wetland System

Surface runoff from a portion of the site will flow to 9 modular wetland system units that provide pre-treatment of flows prior to entering the infiltration basin and infiltration gallery located on the north and east sides of the facility. The Modular Wetland System (WMS) is a proprietary underground storm water filtration system by Bio-Clean Environmental Services, Inc. The modular wetlands provide pre-treatment as well as primary treatment since they have a high to medium efficiency treating for nutrients. After passing through the treatment wetlands, flows will enter the storm drain system and enter the detention basins, infiltration basin, or infiltration gallery. BMP design and maintenance information is included in Appendix F in the manufacturer's technical data sheets.

Phase I will include all 9 modular wetlands systems. A total of fourteen modular wetlands systems will be included for ultimate build-out.

Strip Sand Filter

Two strip sand filters will provide pre-treatment of surface drainage entering the infiltration basin and detention basins within the mid-north side of the facility. The strip sand filter is comprised of a river rock surface layer, filter fabric, a course to medium grain sand filter layer, and a gravel pack with perforated pipe that drains treated storm water to the infiltration basin, detention basins, and infiltration gallery. These filters serve as pre-treatment to prevent clogging of the basins and gallery. The strip sand filters and modular wetland systems are placed throughout the site to treat surface runoff locally rather than at the boundary of the site. BMP design and maintenance information is included in Appendix F in TC-40 Media Filter.

Phase I will include installation of both sand filters. A total of seven sand filters will be included for ultimate build-out.

Vegetated Swale/Strip

7 (Seven) bio-filtration/vegetated swales or strips will be located on the site. One swale at the multi-purpose trail and the others, located throughout the site, will provide pre-treatment for the infiltration basin. The vegetated swale will treat runoff by filtering it through the vegetation and infiltrating it into the underlying soil. The vegetated swale will capture particulate pollutants and provide pre-treatment to avoid clogging of the infiltration basin. BMP design and maintenance information is included in Appendix F in TC-30 Vegetated Swale.

Phase I will include 5 (five) vegetated strips C, D, E, F, G and 2 (two) vegetated swales A and B. A total of 3 (three) vegetated strips D, E and G will be included for ultimate build-out and 2 (two) vegetated swales A and B. Two of the existing vegetated strips C and F will be replaced with rain gardens (these locations are within the future MOB building pads) and one additional swale will be added in the areas of the proposed fitness center. No additional swale will be added to the site.

PRIMARY TREATMENT – Volume Based Treatment

Volume-based BMP design standards apply to BMPs whose primary mode of pollutant removal depends on the volumetric capacity of the BMP. Volume-based Treatment Control BMPs shall be designed infiltrate or treat the design volume of runoff. The storm water quality design volume (V_{BMP}) must be determined to ensure the pre-treatment BMPs will perform with the storm water quantities calculated for the site. BMP sizing calculations are included in Appendix F.

Infiltration Basin

On the very north and southeast side of the facility, percolation tests indicated that soil conditions were favorable for an infiltration BMP. This infiltration BMP will be used to capture and infiltrate site runoff from the north and east sides of the facility. Since the infiltration basin and infiltration gallery will treat for pollutants of concern with high efficiency they are considered primary treatment. The infiltration basin has been designed to meet the water quality storm flow volume. In addition to the infiltration basin, an underground infiltration gallery will be used to capture surface flows on the southeast side of the facility. The underground infiltration gallery will consist of an underground system of proprietary perforated polypropylene collection chambers by StormTech.

The facility manager will ensure that the infiltration basins will be included for ultimate build-out. The southeast basin will be replaced in build-out by the infiltration gallery (presented below). A single (1) new basin will be included on the north side of the site to manage the runoff from the proposed fitness center and the adjacent parking lot.

Underground Infiltration – StormTech infiltration Gallery

The StormTech infiltration gallery will be used as an underground infiltration BMP in the southeast corner of the facility. The StormTech treatment unit will provide primary treatment to surface flows and provides high efficiency treatment of pollutants of concern. Flows will enter the infiltration gallery after going through the sediment basin that acts as a forebay. The infiltration gallery will receive flows from the north and east side of the building.

The Facilities Manager will ensure that the infiltration gallery is inspected during and after storm events, and monthly during the rainy season (October 1 through April 30). BMP design and maintenance information is included in Appendix F in TC-11 Infiltration Basins.

This BMP will be constructed in a later Phase of the overall development. 2 (Two) chamber sets are proposed to manage the expected volume.

Detention Basin

The percolation tests for most of the site indicated that soil conditions are not conducive for infiltration so detention basins will act as the BMP. Surface flows from the west side of the facility will enter the detention basins after pre-treatment from the modular wetlands systems and strip sand filters BMPs. The detention basin has been designated to drain within 72 hours to prevent standing water conditions and vector-control issues.

Flows that enter the detention basin will be detained temporarily to allow sedimentation to occur. A standpipe riser with orifices will be used to slowly drain the treated runoff from the detention basin to the downstream MS4 system. The detention basins have been designed to meet the water quality storm flow volume. In order to prevent flooding of the basins, an overflow vault system is incorporated to accept flood volumes in excess of the water quality storm volume. The detention basins will also serve to attenuate peak flows for flood control.

The Facilities Manager will ensure that the detention basins are inspected during and after storm events, and monthly during the rainy season (October 1 through April 30). BMP design and maintenance information is included in Appendix F in TC-22 Extended Detention Basins.

Phase I will include three detention basins. 3 (three) additional detention basins will be added for ultimate build-out (6 detention basins total).

V.4 Equivalent Treatment Control Alternatives

Not applicable to this project

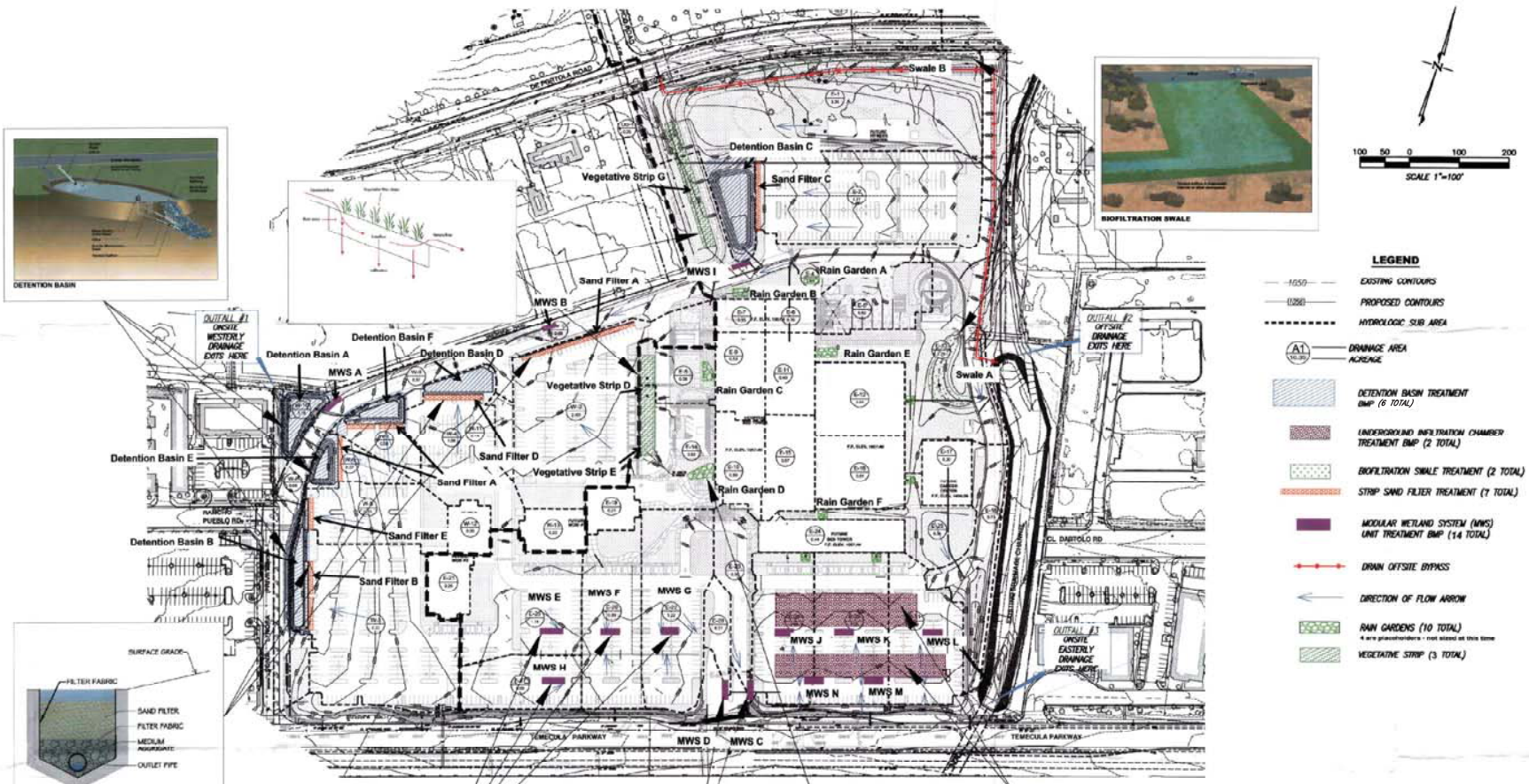
V.5 Regionally-Based Treatment Control BMPs

Not applicable to this project

ULTIMATE DEVELOPMENT

STRUCTURAL TREATMENT BMP	QUANTITY	CAPITAL COSTS	ANNUAL O&M COSTS	START UP DATES	O&M FREQUENCY	RESPONSIBLE FUNDING PARTY FOR INSTALLATION AND LONG-TERM O&M
Infiltration Basins (Interim Condition)	1	$250,000	$2,500	Prior to receiving Certificate of Occupancy	Semi Annual, at start and end of wet season	Universal Health Services
Detention Basins	6	$450,000	$3,000	Prior to receiving Certificate of Occupancy	Semi Annual, at the end of wet season and after heavy rain event	Universal Health Services
StormTech Infiltration Gallery	2	$300,000	$500	Prior to receiving Certificate of Occupancy	In accordance with manufacturer's recommendations. See Appendix C.	Universal Health Services
Biofiltration Swale	2	$60,000	$1,500	Prior to receiving Certificate of Occupancy	Semi Annual, at the end of wet season and after heavy rain event	Universal Health Services
Sand Filter Strips	7	$350,000	$2,500	Prior to receiving Certificate of Occupancy	Semi Annual, at start and end of wet season	Universal Health Services
Modular Wetland	14	$500,000	$2,500	Prior to receiving certificate of occupancy	In accordance with manufacturer's recommendations. See Appendix B.	Universal Health Services
Rain Garden	10	$1,200	$500	Prior to receiving certificate of occupancy	Semi Annual, at start and end of wet season	Universal Health Services
Vegetative Strip	3	$30,000	$1,000	Prior to receiving Certificate of Occupancy	Semi Annual, at start and end of wet season	Universal Health Services

(Note 7-5-2013: The highlighted texts are updated by Excel Engineering for purpose of matching BMP quantities to As-Built Grading Plan)



Client:
Universal Health Services, Inc
367 South Gulph Road
King of Prussia, PA 19406
T 610 768 3300

Architect of Record:
HMC Architects
1010 Second Ave, Studio 810,
West Tower
San Diego, CA 92101
T 619 744 4077

Civil Engineer:
URS
1950 Stemmons Freeway,
Suite 6000
Dallas, Texas 75207
(214) 741-7777
(214) 741-5613 Fax

Design/Build Partners:
Turner Construction Company
DPR Construction Inc.

Temecula Valley Hospital
Temecula, CA.

Agency Approval
REVIEWED IN ACCORDANCE WITH THE REQUIREMENTS OF TITLE 24 PART 2 AND 9

Office of Statewide Health Planning & Development
Facilities Development Division

OSHPD NO.

HMC Project No. 2308006

PLANS ISSUED FOR REVIEW ONLY

REVISION

LD10-019GR

Don't Dig...Until You Call U.S.A. Toll Free 1-800-227-2600
for the location of buried utility lines. Don't disrupt vital services.
TWO WORKING DAYS BEFORE YOU DIG

ULTIMATE BUILDOUT
"FOR REFERENCE ONLY"
DO NOT USE FOR CONSTRUCTION

BUILDING AND SAFETY
REVIEWED FOR COMPLIANCE WITH TITLE 24 DISABLED ACCESS AND ACCESSIBILITY ONLY
APPROVED BY: _____ NAME _____ DATE

CONSTRUCTION RECORD	DATE	BY	REVISIONS	ACC'D	DATE	BENCH MARK	SCALE	SEAL: PROGRESS PRINT	Designed By	Drawn By	Checked By
Contractor						ELEVATION 1302.68' DATUM: NGVD 29	HORIZONTAL	THIS DOCUMENT MAY NOT BE USED FOR CONSTRUCTION. RELEASED UNDER AUTHORITY OF: MARGIE M DE LAURELL, P.E. CALIFORNIA P.E. RCE 59448	SDL		MDL
Inspector							VERTICAL		Plans Prepared Under Supervision Of: MARGIE MARIE DE LAURELL R.C.E. NO. C59448 DATE 6/28/11		
Date Completed											

RECOMMENDED BY: _____ DATE: _____
ACCEPTED BY: _____ DATE: _____
GREG BUTLER
DIRECTOR OF PUBLIC WORKS/CITY ENGINEER
R.C.E. NO. 47109

CITY OF TEMECULA DEPARTMENT OF PUBLIC WORKS

TEMECULA VALLEY HOSPITAL
WQMP BMP PLAN
PM 32468/PA10-0194

Drawing No. **WQMP-2**
Sheet 2 of 7

WQIP-1
2016

Project Specific
Water Quality Management Plan

TEMECULA MEDICAL CENTER
31700 TEMECULA PARKWAY
TEMECULA, CA 92592

Parcel No. 959-080-019-1

DESIGN REVIEW NO. PA10-0194

LD _____

Prepared for:

Universal Health Services
367 South Gulph Road
King of Prussia, PA 19406
610.768.3300
William Seed, Project Manager
800.347.7750

Prepared by:

Excel Engineering
Robert D. Dentino, R.C.E.
440 State Place
Escondido, CA 92029
760.745.8118

WQMP Preparation/Revision Date:
July 2007, April 2010, December 2010, May 2011, June 2011

Revision Date: July 2013 by Excel Engineering
(Updating number item of BMPs based on Approved Grading Plans only)

Revision Date: December 2016 by Excel Engineering
(Updating number of BMPs based on Precise Grading Plans only for Hospital Expansion Sheets PG-67 thru PG-74)

EXCEL ***ENGINEERING***

LEVIN & DENTINO INC. D.B.A. EXCEL ENGINEERING

ESCONDIDO: 440 State Place • Escondido, CA 92029 (760) 745-8118 • Fax (760) 745-1890

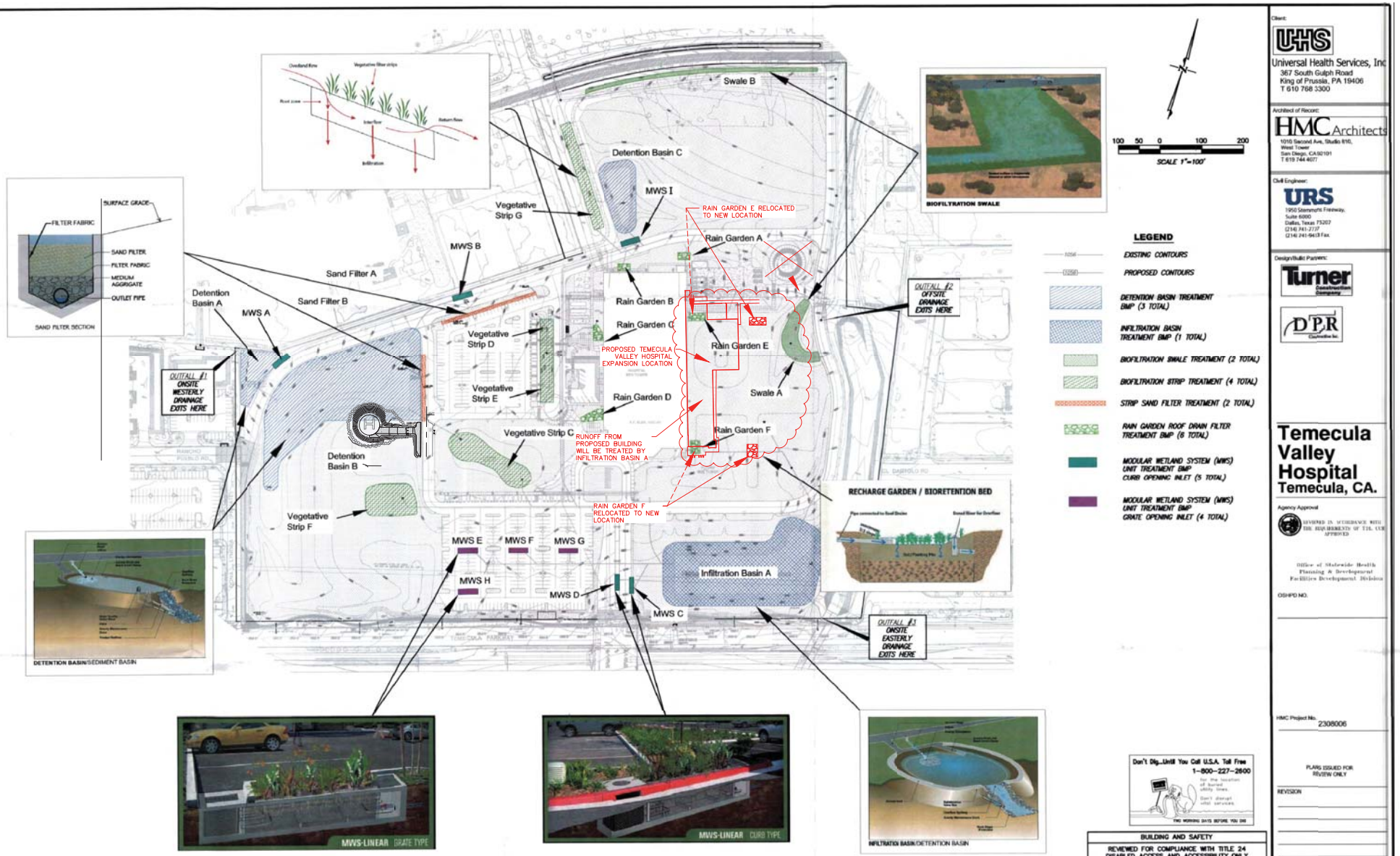
Temecula Valley Hospital Expansion
Water Quality Management Plan (WQMP) Provisions

December 6, 2016

The project site is located in the City of Temecula in Riverside County. The proposed development includes the construction of a new hospital building expansion, sidewalk improvements and modifications, alterations to the existing loading dock area, stormdrain improvements, new sewer lines to service the new building expansion, and landscaping.

The proposed development, as shown on the Phase 1 BMP Plan (see WQMP-1), relocates Rain Gardens E and F. These two rain gardens will continue to treat the stormwater runoff from the existing building before ultimately discharging into Infiltration Basin A. The stormwater runoff from the new impervious areas of the proposed development will be treated by infiltration in Basin A. Per the original WQMP, Infiltration Basin A was already sized to treat the area where the proposed development is located as if it were all impervious area, with a C factor of 0.89 (see WQMP-3 and Worksheet 1). The pervious areas of the proposed development will be self-treating landscaped areas. Therefore, there is no need for the addition of any new BMPs.

The design of the proposed development accounts for treatment of the new impervious area and is consistent with the overall water quality treatment for the site. It will not adversely impact the in-place treatment measures currently maintained on-site.



BMP SITE PLAN - PHASE I

Client:
Universal Health Services, Inc
367 South Gulph Road
King of Prussia, PA 19406
T 610 768 3300

Architect of Record:
HMC Architects
1010 Second Ave, Studio 810,
West Tower
San Diego, CA 92101
T 619 744 4077

Civil Engineer:
URS
1950 Stemmons Freeway,
Suite 6000
Dallas, Texas 75207
(214) 741-2727
(214) 241-6613 Fax

Design/Build Partners:
Turner Construction Company
DPR Construction Inc.

Temecula Valley Hospital
Temecula, CA.

Agency Approval
REVIEWED IN ACCORDANCE WITH THE REQUIREMENTS OF TITLE 24 APPROVED
Office of Statewide Health Planning & Development Facilities Development Division
OSHPD NO.

HMC Project No. 2308006

PLANS ISSUED FOR REVIEW ONLY

REVISION

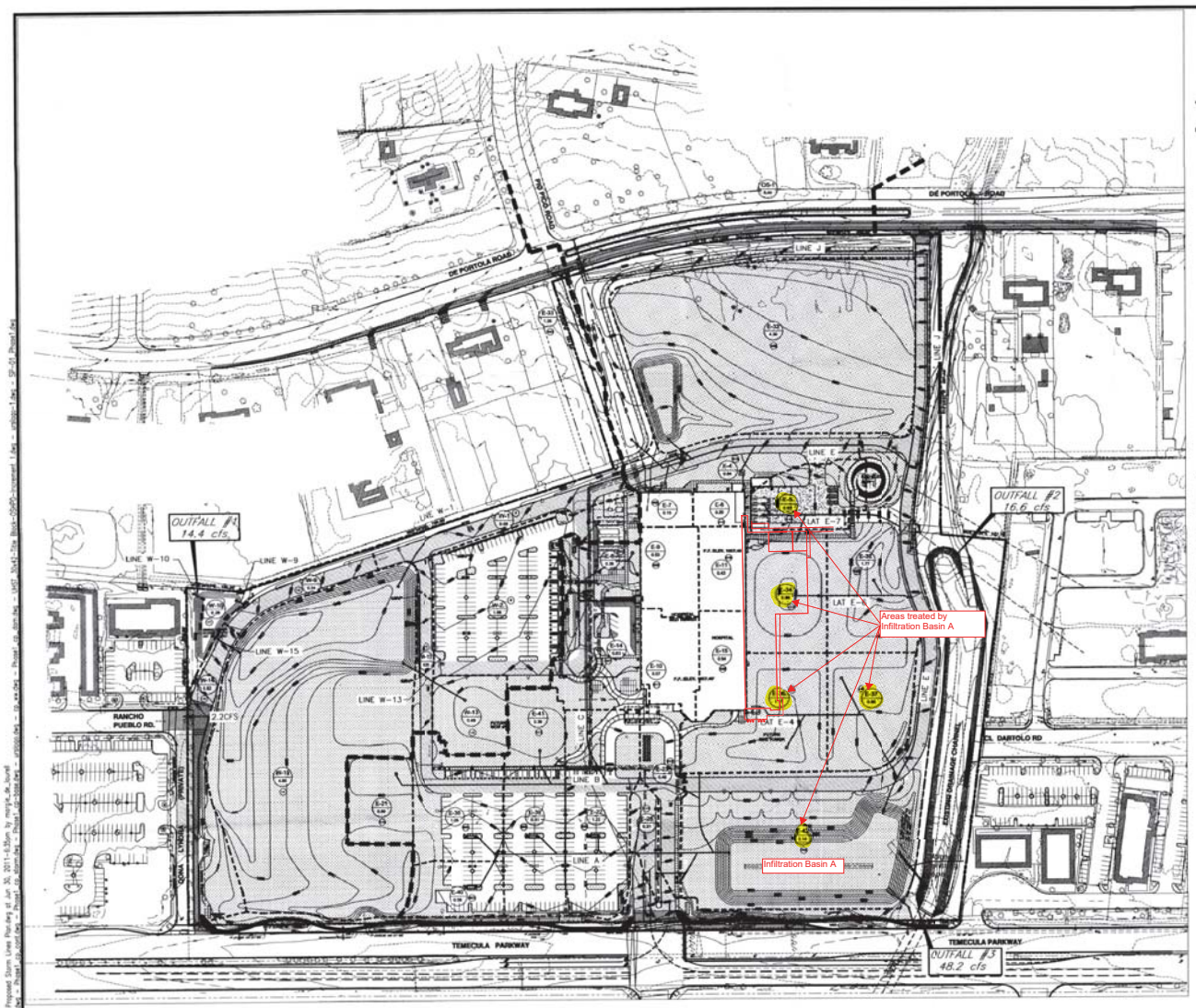
CONSTRUCTION RECORD	DATE	BY	REVISIONS	ACC'D	DATE	BENCH MARK	SCALE	SEAL: PROGRESS PRINT	Designed By	Drawn By	Checked By
Contractor						BM 128+83 STAMPED ON 3 & 1/2" BRASS DISK K-82 1927 LOCATED 2.0 MILES SOUTHEAST ON TEMECULA PARKWAY FROM MAIN STREET, 1.8 MILES SOUTH ON RAINBOW CANYON ROAD.	HORIZONTAL	THIS DOCUMENT MAY NOT BE USED FOR CONSTRUCTION. RELEASED UNDER AUTHORITY OF: MARGIE M DE LAURELL, P.E. CALIFORNIA P.E. #C-59448	SEL	MDL	
Inspector						ELEVATION: 1,125.48' DATUM: N.G.V.D. 1929	VERTICAL		Plans Prepared Under Supervision Of		
Date Completed									MARGIE MARIE DE LAURELL R.C.E. NO. C59448	DATE 6/28/11	

RECOMMENDED BY: _____ DATE: _____
ACCEPTED BY: _____ DATE: _____
GREG BUTLER
DIRECTOR OF PUBLIC WORKS/CITY ENGINEER
R.C.E. NO. 47109

CITY OF TEMECULA DEPARTMENT OF PUBLIC WORKS

TEMECULA VALLEY HOSPITAL
PHASE I BMP PLAN
PM 32468/PA10-0194

Drawing No. **WQMP-1**
Sheet 1 OF 7



LEGEND

- EXISTING CONTOURS (1050)
- PROPOSED CONTOURS (1056)
- DRAINAGE AREA DIVIDES
- EAST/WEST DRAINAGE AREAS BOUNDARY
- A1 / 10.33 — DRAINAGE AREA / ACREAGE
- OUTFALL #1 — OUTFALL NUMBER

100 50 0 100 200

LEGEND

- PROPOSED STORM PIPE
- DRAINAGE BOUNDARY LINE
- PROPOSED INLET STRUCTURE
- DETENTION BASIN STAND PIPE
- PROPOSED HEADWALL
- PROPOSED LANDSCAPED AREA
- TO BE CONSTRUCTED WITH STREET IMPROVEMENT PLANS.
- 130 — NODE #

OUTFALL #2 - OFFSITE

DRAINAGE AREA	AREA (ACRES)	C	I_{100} (in/hr)	Q_{100} (cfs)
OS-1	8.44	0.83	4.6	16.6

OUTFALL #1 - WEST

DRAINAGE AREA	AREA (ACRES)	C	I_{100} (in/hr)	Q_{100} (cfs)
W-1	0.68	0.89	3.9	2.4
W-2	1.88	0.89	4.0	6.8
W-9	0.34	0.89	3.6	1.1
W-10	0.28	0.89	3.6	0.9
W-11	0.25	0.89	4.0	0.9
W-13	0.49	0.85	4.0	1.7
W-15	4.85	0.85	2.9	11.8
TOTAL	8.77			

RUNOFF TO RANCHO PUEBLO RD

DRAINAGE AREA	AREA (ACRES)	C	I_{100} (in/hr)	Q_{100} (cfs)
W-14	0.82	0.84	3.1	2.2

OUTFALL #3 - EAST

DRAINAGE AREA	AREA (ACRES)	C	I_{100} (in/hr)	Q_{100} (cfs)
E-4	0.84	0.89	4.0	2.9
E-5	0.62	0.89	4.8	2.7
E-6	0.20	0.89	5.1	0.9
E-7	0.15	0.89	5.1	0.7
E-8	0.38	0.89	4.5	1.5
E-9	0.53	0.88	4.7	2.2
E-10	0.57	0.89	4.5	2.3
E-11	0.43	0.89	4.5	1.7
E-14	0.83	0.89	4.0	2.9
E-15	0.54	0.89	4.1	2.0
E-21	0.50	0.84	3.3	1.4
E-22	1.22	0.89	4.2	4.5
E-23	0.48	0.89	3.9	1.7
E-28	0.21	0.89	4.8	0.9
E-32	4.30	0.83	2.7	9.6
E-33	1.26	0.82	2.4	2.5
E-34	0.86	0.85	3.4	2.4
E-35	1.77	0.83	2.7	4.0
E-36	1.17	0.84	2.8	2.8
E-37	0.85	0.83	3.3	2.4
E-38	1.06	0.89	4.3	4.1
E-39	0.81	0.89	5.1	3.7
E-40	0.58	0.89	4.9	2.5
E-41	0.39	0.84	3.2	1.0
E-42	3.14	0.83	2.5	6.6
TOTAL	23.69			

Don't Dig...Until You Call U.S.A. Toll Free 1-800-227-2600 for the location of buried utility lines. Don't disrupt vital services.

BUILDING AND SAFETY
REVIEWED FOR COMPLIANCE WITH TITLE 24 DISABLED ACCESS AND ACCESSIBILITY ONLY
APPROVED BY: _____ NAME _____ DATE

Client:
UHS
Universal Health Services, Inc
367 South Gulph Road
King of Prussia, PA 19406
T 610 768 3300

Architect of Record:
HMC Architects
1010 Second Ave, Studio 810,
West Tower
San Diego, CA 92101
T 619 744 4077

Civil Engineer:
URS
1950 Stemmons Freeway,
Suite 6000
Dallas, Texas 75207
(214) 741-7777
(214) 741-9413 Fax

Design/Build Partners:
Turner Construction Company
DPR Construction

Temecula Valley Hospital
Temecula, CA.

Agency Approval
REVIEWED IN ACCORDANCE WITH THE REQUIREMENTS OF T24, CCR APPROVED
Office of Statewide Health Planning & Development Facilities Development Division
OSHPD NO.

HMC Project No. 2308006

PLANS ISSUED FOR REVIEW ONLY

REVISION

LD10-019GR

REVISED BID DOCUMENTS 06-28-2011

CONSTRUCTION RECORD	DATE	BY	REVISIONS	ACC'D	DATE	BENCH MARK	SCALE
Contractor _____ Inspector _____ Date Completed _____						BM - CBD83 STAMPED ON 3 & 1/2" BRASS DISK K-62 1927 LOCATED 2.0 MILES SOUTHEAST ON TEMECULA PARKWAY FROM MAIN STREET, 1.8 MILES SOUTH ON RAINBOW CANYON ROAD. ELEVATION: 1303.486' DATE: 9-01-92	HORIZONTAL VERTICAL

SEAL: PROGRESS PRINT
THIS DOCUMENT MAY NOT BE USED FOR CONSTRUCTION, RELEASED UNDER AUTHORITY OF: MARGIE M DE LAURELL, P.E. CALIFORNIA P.E. #C-59448

Designed By	Drawn By	Checked By
SEL		MDL

Plans Prepared Under Supervision Of
MARGIE MARIE DE LAURELL
R.C.E. NO. C59448
DATE 6/28/11

RECOMMENDED BY: _____ DATE: _____
ACCEPTED BY: _____ DATE: _____
GREG BUTLER
DIRECTOR OF PUBLIC WORKS/CITY ENGINEER
R.C.E. NO. 47109

CITY OF TEMECULA DEPARTMENT OF PUBLIC WORKS

TEMECULA VALLEY HOSPITAL
PHASE 1 DRAINAGE AREA MAP
PM 32468/PA10-0194

Drawing No. WQMP -3
Sheet 3 of 7

Worksheet 1

Design Procedure for BMP Design Volume

85th percentile runoff event

Designer: CYNTHIA GABALDON
Company: URS CORP
Date: 12/28/10
Project: UHS Temecula
Location: INFILTRATION BASIN - SE CORNER. "BASIN A"

1. Create Unit Storage Volume Graph a. Site location (Township, Range, and Section). b. Slope value from the Design Volume Curve in **Appendix A**. c. Plot this value on the Unit Storage Volume Graph shown on **Figure 2.** d. Draw a straight line form this point to the origin, to create the graph	T 8S &R 2W Section 18	*(1)*
	Slope = 1.20	*(2)*
	Is this graph attached? Yes ☑ No ☐	
2. Determine Runoff Coefficient a. Determine total impervious area	$A_{impervious}$ = _____ acres	*(5)*
b. Determine total tributary area	A_{total} = 6.23 acres	*(6)*
c. Determine Impervious fraction i = *(5)* / *(6)*	i = _____	*(7)*
d. Use *(7)* in **Figure 1** to find Runoff OR C = $.858i^3 - .78i^2 + .774i + .04$	C = 0.89	*(8)*
3. Determine 85% Unit Storage Volume a. Use *(8)* in **Figure 2** Draw a Vertical line from *(8)* to the graph, then a Horizontal line to the desired V_u value.	V_u = 1.06 in-acre / acre	*(9)*
4. Determine Design Storage Volume a. V_{BMP} = *(9)* x *(6)* [in- acres]	V_{BMP} = 6.6 in-acre	*(10)*
b. V_{BMP} = *(10)* / 12 [ft- acres]	V_{BMP} = 0.55 ft-acre	*(11)*
c. V_{BMP} = *(11)* x 43560 [ft^3]	V_{BMP} = 23,958 ft^3	*(12)*

Notes: Subareas E-5, E-34, E-36, E-37, E-42

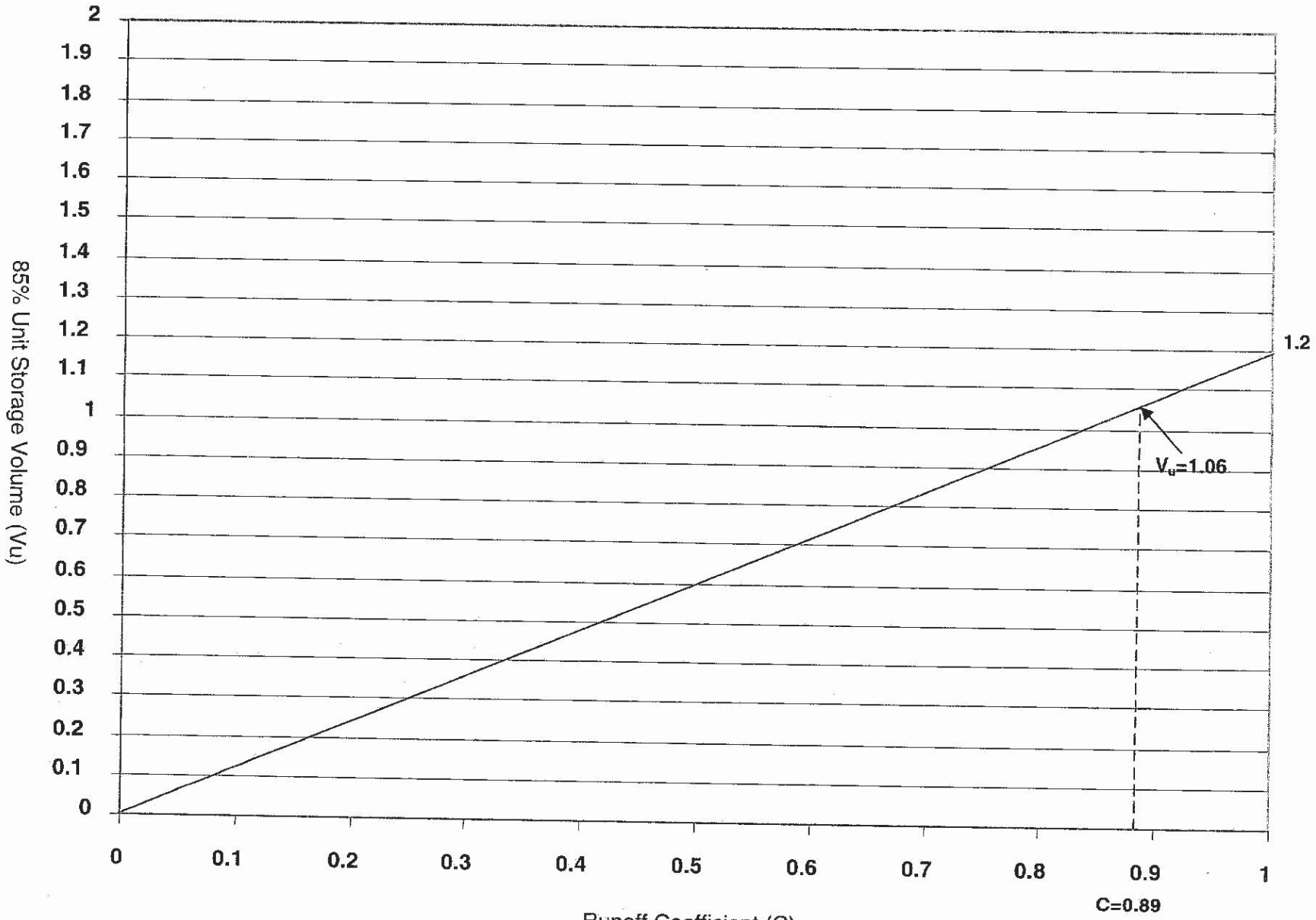


Figure 2 Unit Storage Volume Graph

WQIP-3
2018

Project Specific
Water Quality Management Plan Addendum

TEMECULA MEDICAL CENTER
31700 TEMECULA PARKWAY
TEMECULA, CA 92592

Parcel No. 959-080-019-1

DESIGN REVIEW NO. PA13-0141

LD _____

Prepared for:

Universal Health Services
367 South Gulph Road
King of Prussia, PA 19406
610.768.3300
William Seed, Project Manager
800.347.7750

Prepared by:

Excel Engineering
Robert D. Dentino, R.C.E.
440 State Place
Escondido, CA 92029
760.745.8118

WQMP Preparation/Revision Date:
July 2007, April 2010, December 2010, May 2011, June 2011

Revision Date: July 2013 by Excel Engineering
(Updating number item of BMPs based on Approved Grading Plans only)

Revision Date: December 2016 by Excel Engineering
(Updating number of BMPs based on Precise Grading Plans only for Hospital Expansion Sheets PG-67 thru PG-74)

Revision Date: September 2017 by Excel Engineering
(Identifying Detention Basin "C' as BMP treating proposed Parking Lot Expansion at northeast corner of site - based on Precise Grading Plans only for Parking Lot Expansion PG1-PG4)

Revision Date: January 2018 by Excel Engineering
(Identifying Subbasins E5 and E35 as being those that the proposed Storage Building installation at the northeast of the dock area, south and west of Fire Lane, belongs to – based on Precise Grading Plans only for the Storage Building PG1-PG4)

EXCEL *ENGINEERING*

LEVIN & DENTINO INC. D.B.A. EXCEL ENGINEERING

ESCONDIDO: 440 State Place • Escondido, CA 92029 (760) 745-8118 • Fax (760) 745-1890

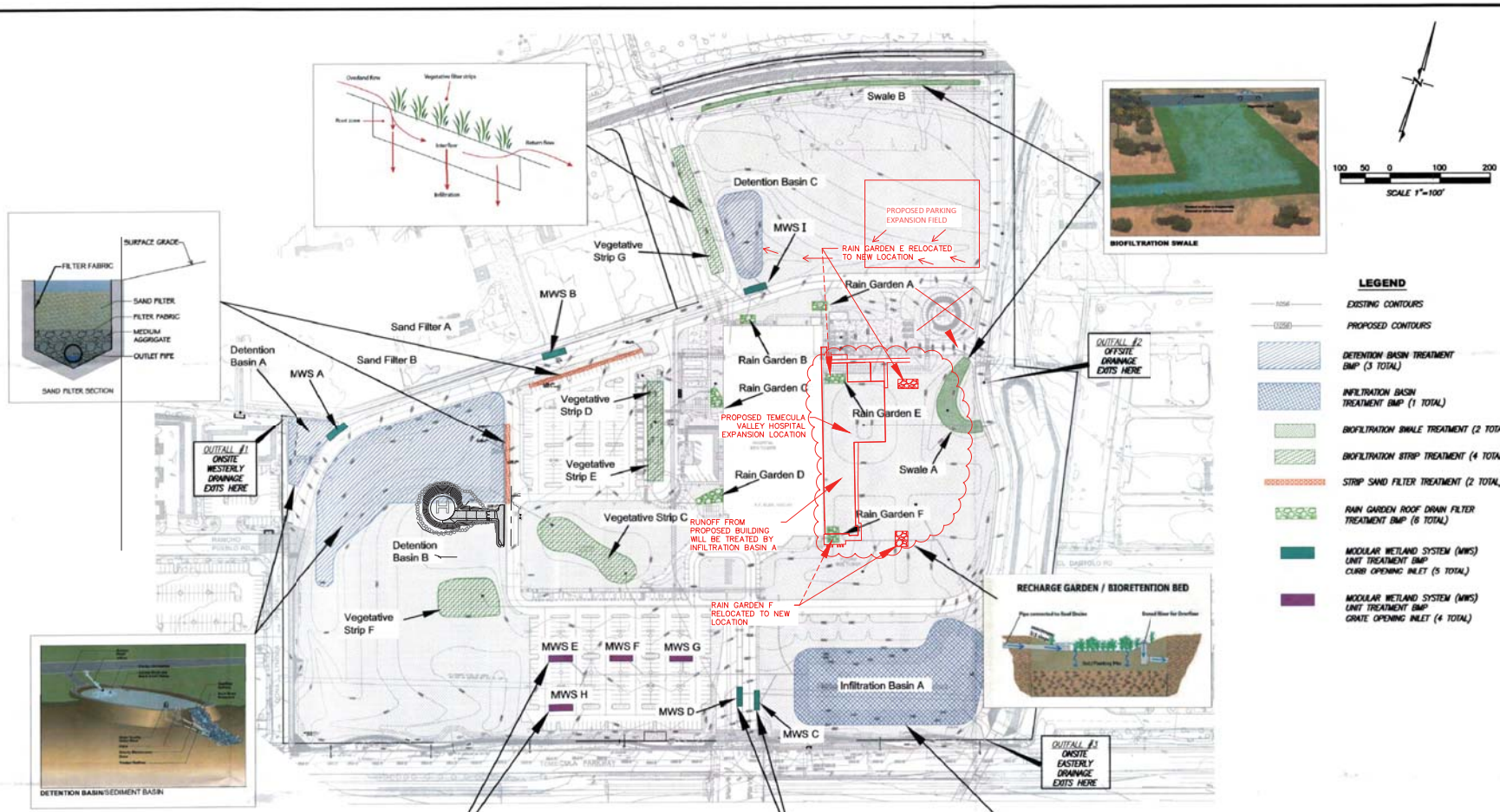
Temecula Valley Hospital Northeast Storage Building
Water Quality Management Plan (WQMP) Provisions

January 4, 2018

The project site is located in the City of Temecula in Riverside County. The proposed development includes the construction of a new 5,000 square foot storage building in the northeast corner of the master site plan, with loading zone, sidewalk and modified parking improvements, landscaping and drainage swale improvements from this separated pad area into the drive aisle that flows to the existing drainage swale south of the dock driveway and east of the new hospital expansion.

The proposed development of the storage building, previously shown as the initial location of the concrete helipad on the Phase 1 BMP Plan (see WQMP-1) is split in half between Subbasin No. 5 (the dock area) and Subbasin No. 35. The west half drains back into the Dock area, and the east half drains to the south into Swale A. While Subbasin No. 35 receives treatment from Swale A before it is routed through the main storm drain system, Subbasin No. 5 (Dock Area) does not. However, the Phase 1 Drainage Area Map (see WQMP-3) shows that these two Subbbasins are routed into Infiltration Basin A to the south of the site. Per the original WQMP (see Infiltration Basin A Treatment Calculations), Subbasin No. 5 receives its treatment in Infiltration Basin A. With these previously installed collection and treatment devices, there is no need for the addition of any new BMPs.

The design of the proposed development accounts for treatment of the new impervious area and is consistent with the overall water quality treatment for the site. It will not adversely impact the in-place treatment measures currently maintained on-site.



BMP SITE PLAN - PHASE I

Client:
Universal Health Services, Inc
367 South Gulph Road
King of Prussia, PA 19406
T 610 768 3300

Architect of Record:
HMC Architects
1010 Second Ave, Studio 810,
West Tower
San Diego, CA 92101
T 619 744 4077

Civil Engineer:
URS
1950 Stemmons Freeway,
Suite 6000
Dallas, Texas 75207
(214) 741-2727
(214) 241-6413 Fax

Design/Build Partners:
Turner Construction Company
DPR Construction Inc.

Temecula Valley Hospital
Temecula, CA.

Agency Approval
REVIEWED IN ACCORDANCE WITH THE REQUIREMENTS OF TITLE 24 APPROVED
Office of Statewide Health Planning & Development Facilities Development Division
OSHPD NO.

HMC Project No. 2308006

PLANS ISSUED FOR REVIEW ONLY

REVISION

Don't Dig...Until You Call U.S.A. Toll Free 1-800-227-2600
TWO WORKING DAYS BEFORE YOU DIG

BUILDING AND SAFETY
REVIEWED FOR COMPLIANCE WITH TITLE 24 DISABLED ACCESS AND ACCESSIBILITY ONLY
APPROVED BY: _____ NAME _____ DATE

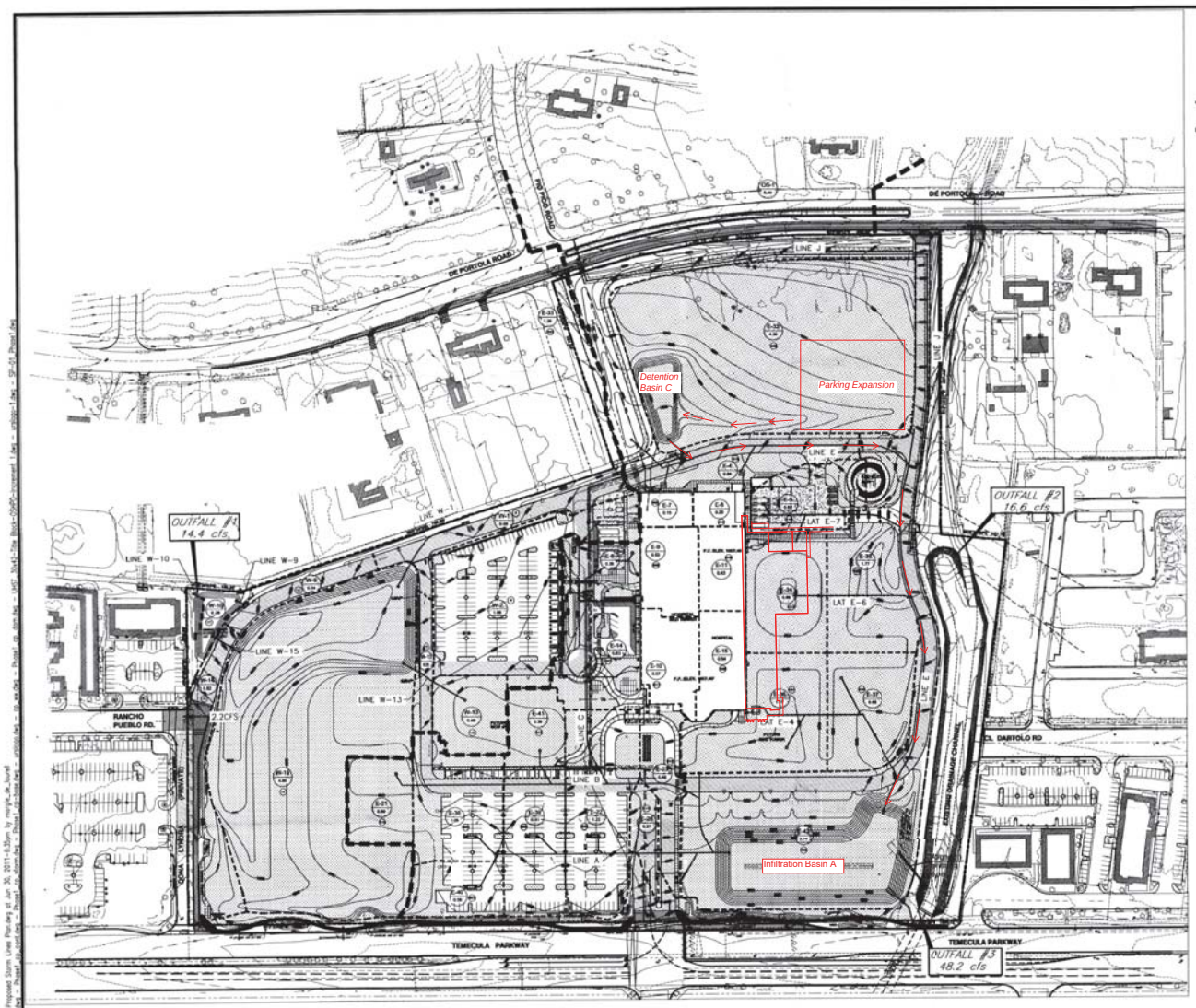
CONSTRUCTION RECORD	DATE	BY	REVISIONS	ACC'D	DATE	BENCH MARK	SCALE	SEAL: PROGRESS PRINT	Designed By	Drawn By	Checked By
Contractor						BM 128+83 STAMPED ON 2 & 1/2" BRASS DISK K-62 1927 LOCATED 2.0 MILES SOUTHEAST ON TEMECULA PARKWAY FROM MAIN STREET, 1.8 MILES SOUTH ON RAINBOW CANYON ROAD. ELEVATION: 1,130.48' DATUM: N.G.V.D. 1929	HORIZONTAL	THIS DOCUMENT MAY NOT BE USED FOR CONSTRUCTION. RELEASED UNDER AUTHORITY OF: MARGIE M DE LAURELL, P.E. CALIFORNIA P.E. #C-59448	SEL	MDL
Inspector							VERTICAL		Plans Prepared Under Supervision Of		
Date Completed									MARGIE MARIE DE LAURELL	DATE 6/28/11	
									R.C.E. NO. C59448		

RECOMMENDED BY: _____ DATE: _____
ACCEPTED BY: _____ DATE: _____
GREG BUTLER
DIRECTOR OF PUBLIC WORKS/CITY ENGINEER
R.C.E. NO. 47109

CITY OF TEMECULA DEPARTMENT OF PUBLIC WORKS

TEMECULA VALLEY HOSPITAL
PHASE I BMP PLAN
PM 32468/PA10-0194

Drawing No. WQMP-1
Sheet 1 OF 7



LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- DRAINAGE AREA DIVIDES
- EAST/WEST DRAINAGE AREAS BOUNDARY
- A1 / 10.33 — DRAINAGE AREA / ACREAGE
- OUTFALL #1 — OUTFALL NUMBER

100 50 0 100 200

LEGEND

- PROPOSED STORM PIPE
- DRAINAGE BOUNDARY LINE
- PROPOSED INLET STRUCTURE
- DETENTION BASIN STAND PIPE
- PROPOSED HEADWALL
- PROPOSED LANDSCAPED AREA
- TO BE CONSTRUCTED WITH STREET IMPROVEMENT PLANS.
- 130 — NODE #

OUTFALL #2 - OFFSITE

DRAINAGE AREA	AREA (ACRES)	C	I_{100} (in/hr)	Q_{100} (cfs)
OS-1	8.44	0.83	4.6	16.6

OUTFALL #1 - WEST

DRAINAGE AREA	AREA (ACRES)	C	I_{100} (in/hr)	Q_{100} (cfs)
W-1	0.68	0.89	3.9	2.4
W-2	1.88	0.89	4.0	6.8
W-9	0.34	0.89	3.6	1.1
W-10	0.28	0.89	3.6	0.9
W-11	0.25	0.89	4.0	0.9
W-13	0.49	0.85	4.0	1.7
W-15	4.85	0.85	2.9	11.8
TOTAL	8.77			

RUNOFF TO RANCHO PUEBLO RD

DRAINAGE AREA	AREA (ACRES)	C	I_{100} (in/hr)	Q_{100} (cfs)
W-14	0.82	0.84	3.1	2.2

OUTFALL #3 - EAST

DRAINAGE AREA	AREA (ACRES)	C	I_{100} (in/hr)	Q_{100} (cfs)
E-4	0.84	0.89	4.0	2.9
E-5	0.62	0.89	4.8	2.7
E-6	0.20	0.89	5.1	0.9
E-7	0.15	0.89	5.1	0.7
E-8	0.38	0.89	4.5	1.5
E-9	0.53	0.88	4.7	2.2
E-10	0.57	0.89	4.5	2.3
E-11	0.43	0.89	4.5	1.7
E-14	0.83	0.89	4.0	2.9
E-15	0.54	0.89	4.1	2.0
E-21	0.50	0.84	3.3	1.4
E-22	1.22	0.89	4.2	4.5
E-23	0.48	0.89	3.9	1.7
E-28	0.21	0.89	4.8	0.9
E-32	4.30	0.83	2.7	9.6
E-33	1.26	0.82	2.4	2.5
E-34	0.86	0.85	3.4	2.4
E-35	1.77	0.83	2.7	4.0
E-36	1.17	0.84	2.8	2.8
E-37	0.85	0.83	3.3	2.4
E-38	1.06	0.89	4.3	4.1
E-39	0.81	0.89	5.1	3.7
E-40	0.58	0.89	4.9	2.5
E-41	0.39	0.84	3.2	1.0
E-42	3.14	0.83	2.5	6.6
TOTAL	23.69			

Don't Dig...Until You Call U.S.A. Toll Free 1-800-227-2600 for the location of buried utility lines. Don't disrupt vital services.

BUILDING AND SAFETY
REVIEWED FOR COMPLIANCE WITH TITLE 24 DISABLED ACCESS AND ACCESSIBILITY ONLY
APPROVED BY: _____ NAME _____ DATE

Client:
UHS
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367 South Gulph Road
King of Prussia, PA 19406
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Civil Engineer:
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Suite 6000
Dallas, Texas 75207
(214) 741-7777
(214) 741-9413 Fax

Design/Build Partners:
Turner Construction Company
DPR Construction Inc.

Temecula Valley Hospital
Temecula, CA.

Agency Approval
REVIEWED IN ACCORDANCE WITH THE REQUIREMENTS OF TSR 11B APPROVED
Office of Statewide Health Planning & Development Facilities Development Division
OSHPD NO.

HMC Project No. 2308006

PLANS ISSUED FOR REVIEW ONLY
REVISION

LD10-019GR

REVISED BID DOCUMENTS 06-28-2011

CONSTRUCTION RECORD	DATE	BY	REVISIONS	ACC'D	DATE	BENCH MARK	SCALE
Contractor _____						BM "OSCO" STAMPED ON 3 & 1/2" BRASS DISK K-62 1927 LOCATED 2.0 MILES SOUTHEAST ON TEMECULA PARKWAY FROM MAIN STREET, 1.8 MILES SOUTH ON RAINBOW CANYON ROAD. ELEVATION: 1303.486' DATE: 9-01-82	HORIZONTAL
Inspector _____							VERTICAL
Date Completed _____							

SEAL: PROGRESS PRINT — THIS DOCUMENT MAY NOT BE USED FOR CONSTRUCTION. RELEASED UNDER AUTHORITY OF: MARGIE M DE LAURELL, P.E. CALIFORNIA P.E. #C-59448

Designed By	Drawn By	Checked By
SEL		MDL

Plans Prepared Under Supervision Of
MARGIE MARIE DE LAURELL
R.C.E. NO. C59448
DATE 6/28/11

RECOMMENDED BY: _____ DATE: _____
ACCEPTED BY: _____ DATE: _____
GREG BUTLER
DIRECTOR OF PUBLIC WORKS/CITY ENGINEER
R.C.E. NO. 47109

CITY OF TEMECULA DEPARTMENT OF PUBLIC WORKS

TEMECULA VALLEY HOSPITAL
PHASE 1 DRAINAGE AREA MAP
PM 32468/PA10-0194

Drawing No. WQMP -3
Sheet 3 of 7

Worksheet 1

Design Procedure for BMP Design Volume

85th percentile runoff event

Designer: CYNTHIA GABALDON
Company: URS CORP
Date: 12/28/10
Project: UHS Temecula
Location: INFILTRATION BASIN - SE CORNER. "BASIN A"

1. Create Unit Storage Volume Graph a. Site location (Township, Range, and Section). b. Slope value from the Design Volume Curve in **Appendix A**. c. Plot this value on the Unit Storage Volume Graph shown on **Figure 2.** d. Draw a straight line form this point to the origin, to create the graph	T 8S &R 2W Section 18	*(1)*
	Slope = 1.20	*(2)*
	Is this graph attached? Yes ☑ No ☐	
2. Determine Runoff Coefficient a. Determine total impervious area	$A_{impervious}$ = _____ acres	*(5)*
b. Determine total tributary area	A_{total} = 6.23 acres	*(6)*
c. Determine Impervious fraction i = *(5)* / *(6)*	i = _____	*(7)*
d. Use *(7)* in **Figure 1** to find Runoff OR $C = .858i^3 - .78i^2 + .774i + .04$	C = 0.89	*(8)*
3. Determine 85% Unit Storage Volume a. Use *(8)* in **Figure 2** Draw a Vertical line from *(8)* to the graph, then a Horizontal line to the desired V_u value.	V_u = 1.06 in-acre / acre	*(9)*
4. Determine Design Storage Volume a. V_{BMP} = *(9)* x *(6)* [in- acres]	V_{BMP} = 6.6 in-acre	*(10)*
b. V_{BMP} = *(10)* / 12 [ft- acres]	V_{BMP} = 0.55 ft-acre	*(11)*
c. V_{BMP} = *(11)* x 43560 [ft^3]	V_{BMP} = 23,958 ft^3	*(12)*

Notes: Subareas E-5, E-34, E-36, E-37, E-42

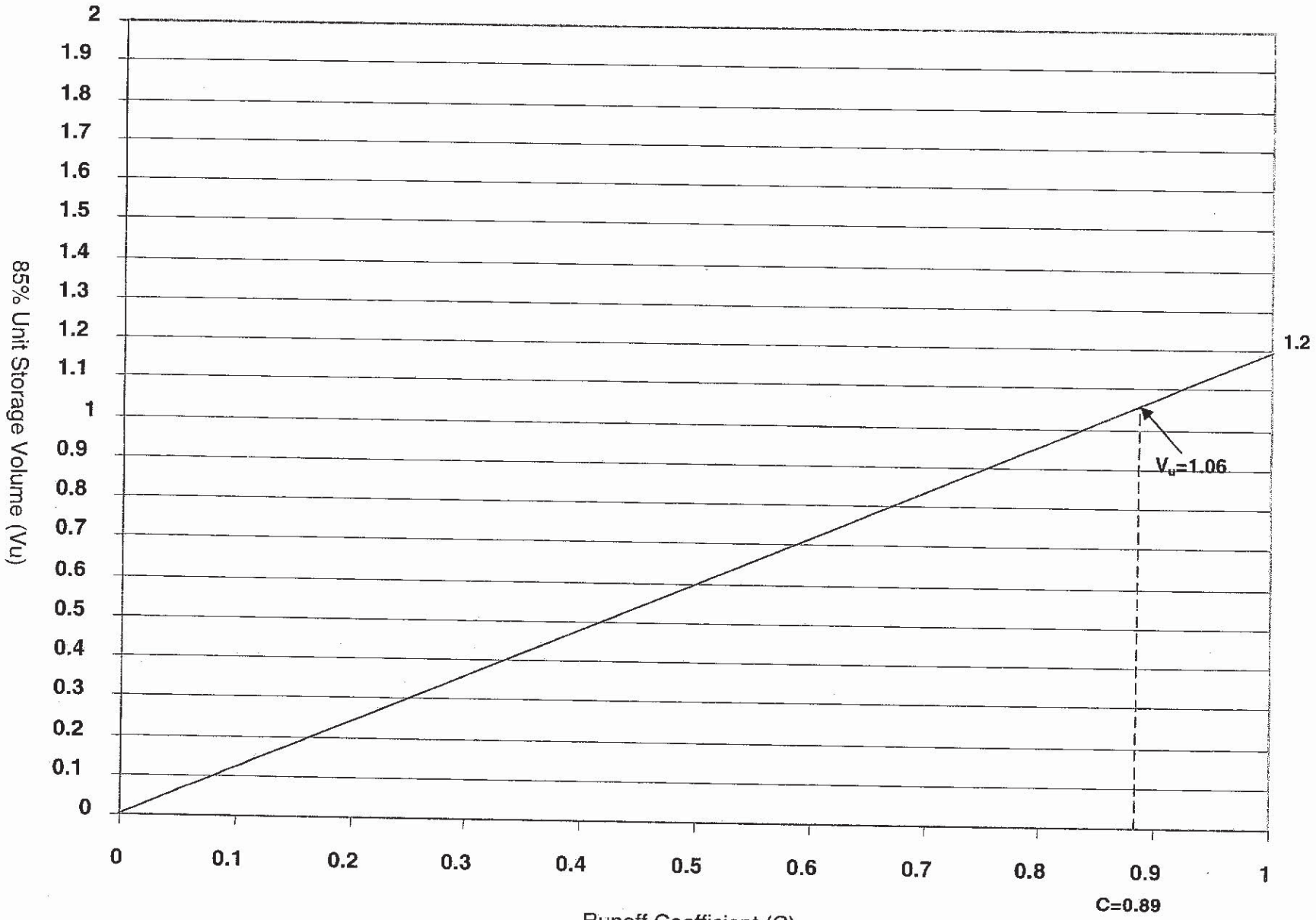


Figure 2 Unit Storage Volume Graph

Worksheet 4

Design Procedure Form for Infiltration Basin

Designer: Cynthia Gabaldon
Company: URS Corporation
Date: December 28, 2010
Project: UHS Temecula
Location: Southeast Corner of Site

1. Determine Design Storage Volume (Use Worksheet 1) a. Total Tributary Area (maximum 50) b. Design Storage Volume, V_{BMP}	A_{total} = 6.23 acres V_{BMP} = 23,958 ft^3
2. Maximum Allowable Depth (D_m) a. Site infiltration rate (I) b. Minimum drawdown time (48 hrs) c. Safety factor (s) d. D_m = [(t) x (I)]/[12s]	I = 30 in/hr t = 48 hrs s = 2 D_m = 0.4 ft
3. Basin Surface Area $A_m = V_{BMP} / D_m$	A_m = 62,393 ft^2
4. Vegetation (check type used or describe "other")	☑ Native Grasses ☐ Irrigated Turf Grass ☐ Other

Notes:

WQIP-2
2019

Project Specific
Water Quality Management Plan - Addendum

TEMECULA MEDICAL CENTER
31700 TEMECULA PARKWAY
TEMECULA, CA 92592

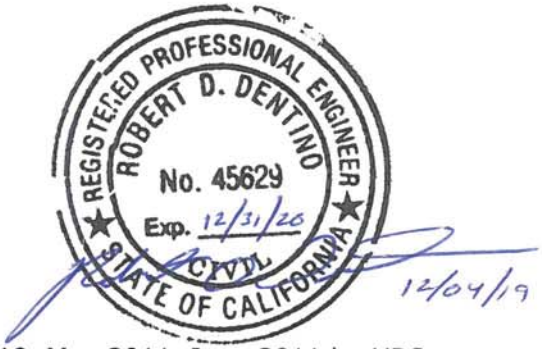
Parcel No. 959-080-026

PA13-0141
LD 19-XXXX

Prepared for:

Universal Health Services
367 South Gulph Road
King of Prussia, PA 19406
610.768.3300

Prepared by:
Excel Engineering
Robert D. Dentino, R.C.E.
440 State Place
Escondido, CA 92029



WQMP Preparation/Revision Date:
July 2007, April 2010, December 2010, May 2011, June 2011 by URS

Revision Date: July 2013 by Excel Engineering
(Updating number item of BMPs based on Approved Grading Plans only)

Revision Date: December 2016 by Excel Engineering
(Update number of BMPs for Precise Grading Plans for Hospital Expansion Shts PG-67-PG-74)

Revision Date: September 2017 by Excel Engineering
(Identifying Detention Basin 'C' as the BMP treating the proposed Parking Lot Expansion No. 1 at the NE corner of the site – based on Precise Grading plans for the Parking Expansion 1 PG1-PG4)

Revision Date: January 2018 by Excel Engineering
(Identifying Subbasins E5 and E35 as being those that the proposed Storage Building installation at the northeast of the dock area, south and west of Fire Lane, belong to – based on Precise Grading Plans only for the Storage Building PG1-PG4)

Revision Date: October 2019 by Excel Engineering
(Identifying MWS E and MWS H as the BMPs treating the proposed Parking Lot Expansion No. 2 at the SW corner of the site – based on Precise Grading plans for the Parking Lot Expansion No. 2 PG1-PG3)

EXCEL ***ENGINEERING***

LEVIN & DENTINO INC. D.B.A. EXCEL ENGINEERING

ESCONDIDO: 440 State Place • Escondido, CA 92029 (760) 745-8118 • Fax (760) 745-1890

Temecula Valley Hospital Parking Lot Expansion No. 2 (SW Corner)
Water Quality Management Plan (WQMP) Provisions

October 2, 2019

The project site is located in the City of Temecula in Riverside County. The proposed development includes the construction of a 46-stall parking lot expansion, with provisions for 8 motorcycles as well. Improvements will consist of curb, gutter, pavement, and landscaping and will connect to the existing parking lot in the southern portion of the Hospital Campus along Temecula Parkway.

The proposed development of the this second auxiliary parking lot is a continuation of the development of the site per the Master Planned facility approved as part of PA13-0141. This parking lot will connect to the existing parking lot shown southwesterly of the existing hospital building at the southern end of the site along Temecula Parkway as shown on the Phase 1 BMP Plan and the Phase 1 Drainage Area Map (see WQMP-1 and WQMP-3, respectively). These Phase 1 Plans show facilities already installed to treat runoff from the existing parking area (Modular Wetland Systems MWS E and MWS H) and how the stormwater runoff from the new impervious areas of the proposed parking lot will be treated by MWS E and H prior to releasing into Storm Drain Line A toward Infiltration Basin A and discharging from the site at Outfall #3. Sizing Calculations were performed in the original approved WQMP report stating that Basin E-38 (1.06 acres) drains to MWS E and Basin E-40 (0.58 acres) drains to MWS H. Per the original WQMP, Infiltration Basin A is not meant to provide primary treatment for these areas, but only serves as additional infiltration and detention on the way to the Outfall.

As the Ultimate Condition site shows, Basins E-38 and E-40 do not exist going forward into the Ultimate Condition maps, but are instead called Basin E-26 and E-27, respectively. E-26 is slightly larger in the ultimate condition at 1.18 acres while E-27 remains the same at 0.58 acres. However, the combined peak flowrate for the ultimate condition for these two basins relative to the Phase 1 flowrate is 0.2 CFS less. Both still drain to MWS E and MWS H for treatment (see WQMP-1, WQMP-2, and WQMP-4 through 6) and the sizing calculations for those units are still applicable to the newly named basins due to similar acreage flowing to them (see the calculation sheets and the sizing confirmation from the MWS manufacturer at the back end of this report addendum). Therefore, these units are adequately sized for the ultimate build-out of Basins E-26 and E-27.

The Parking Lot Expansion No. 2 area that is proposed as part of this project lies completely within and up to the westerly extent (ridgeline) of the ultimate condition subbasin areas. All drainage runs easterly and the grading is such that the drainage will go to the MWS units expected to receive the storm water runoff. The impervious layout of the parking area exactly matches that shown on the Master Plan site plan and the ultimate condition BMP maps. The

pervious areas of the proposed development will be self-treating landscaped areas. Therefore, there is no need for the addition of any new BMPs.

The design of the proposed development accounts for treatment of the new impervious area and is consistent with the overall water quality treatment for the site. It will not adversely impact the in-place treatment measures currently maintained on-site.

Worksheet 2

Design Procedure Form for Design Flow

Uniform Intensity Design Flow

Designer: CYNTHIA GABALDON
Company: URS CORP.
Date: 6/3/11
Project: UHS
Location: Temecula, Ca E-40 MWS H

1. Determine Impervious Percentage		
a. Determine total tributary area	A_{total} = .58 acres	*(1)*
b. Determine Impervious %	i = 100 %	*(2)*
2. Determine Runoff Coefficient Values Use Table 4 and impervious % found in step 1		
a. A Soil Runoff Coefficient	C_a =	*(3)*
b. B Soil Runoff Coefficient	C_b = .90	*(4)*
c. C Soil Runoff Coefficient	C_c =	*(5)*
d. D Soil Runoff Coefficient	C_d =	*(6)*
3. Determine the Area decimal fraction of each soil type in tributary area		
a. Area of A Soil / *(1)* =	A_a =	*(7)*
b. Area of B Soil / *(1)* =	A_b = 1.0	*(8)*
c. Area of C Soil / *(1)* =	A_c =	*(9)*
d. Area of D Soil / *(1)* =	A_d =	*(10)*
4. Determine Runoff Coefficient		
a. C = *(3)*x*(7)* + *(4)*x*(8)* + *(5)*x*(9)* + *(6)*x*(10)* =	C = .90	*(11)*
5. Determine BMP Design flow		
a. Q_{BMP} = C x I x A = *(11)* x 0.2 x *(1)*	Q_{BMP} = .104 $\frac{ft^3}{s}$	*(12)*

Worksheet 11

Design Procedure Form for Water Quality Inlets

Designer: CYNTHIA GABALDON
Company: URS CORP
Date: 6/3/11
Project: VHS
Location: Temecula, Ca E-40

1. Determine Design Flow Rate (Use Worksheet 2)	Q_{BMP} = .104 cfs
2. Water Quality Inlet Manufacturer Name Model Flow Capacity of Model Please include a technical sheet from the manufacturer with information on this model.	Make MWS Model Linear Grate-141 Capacity .15 cfs Bypass = 1.28

Notes:

MWS H

Worksheet 2

Design Procedure Form for Design Flow

Uniform Intensity Design Flow

Designer: CYNTHIA GABALDON
Company: URS CORP
Date: 6/3/11
Project: VHS
Location: Temecula, Ca E-38 BMWS-E

1. Determine Impervious Percentage		
a. Determine total tributary area	A_{total} = 1.06 acres	*(1)*
b. Determine Impervious %	i = 100 %	*(2)*
2. Determine Runoff Coefficient Values Use Table 4 and impervious % found in step 1		
a. A Soil Runoff Coefficient	C_a =	*(3)*
b. B Soil Runoff Coefficient	C_b = .90	*(4)*
c. C Soil Runoff Coefficient	C_c =	*(5)*
d. D Soil Runoff Coefficient	C_d =	*(6)*
3. Determine the Area decimal fraction of each soil type in tributary area		
a. Area of A Soil / *(1)* =	A_a =	*(7)*
b. Area of B Soil / *(1)* =	A_b = 1.0	*(8)*
c. Area of C Soil / *(1)* =	A_c =	*(9)*
d. Area of D Soil / *(1)* =	A_d =	*(10)*
4. Determine Runoff Coefficient		
a. C = *(3)*x*(7)* + *(4)*x*(8)* + *(5)*x*(9)* + *(6)*x*(10)* =	C = .90	*(11)*
5. Determine BMP Design flow		
a. Q_{BMP} = C x I x A = *(11)* x 0.2 x *(1)*	Q_{BMP} = .191 $\frac{ft^3}{s}$	*(12)*

Worksheet 11

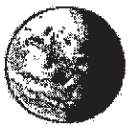
Design Procedure Form for Water Quality Inlets

Designer: CYNTHIA GABALDON
Company: URS CORP
Date: 6/3/11
Project: VHS
Location: Temecula, Ca E-38

1. Determine Design Flow Rate (Use Worksheet 2)	Q_{BMP} = 1.91 cfs Q_{100} = n.i.
2. Water Quality Inlet Manufacturer Name Model Flow Capacity of Model Please include a technical sheet from the manufacturer with information on this model.	Make MWS Model Linear Grate Capacity 1.29 cfs Bypass = 4.51 cfs.

Notes:

MWS E



"Zach Kent"
<zkent@biocleanenvironmental .net>
12/14/2010 01:02 PM

To <Margie_De_Laurell@URSCorp.com>
cc <cynthia_gabaldon@urscorp.com>, <toni_gullace@urscorp.com>, <Lisa_Berman@URSCorp.com>, "John Hayden"
bcc
Subject RE: UHST - MWS, phase 1 DAM & BMP site plan

PHASE I

Hello Margie,

Attached are the updated drawings. Each drawing has under the title the drainage areas it applies to:

W-1 - MWS Linear - 14' Curb Type MWS B

W-9 - MWS Linear - 14' Curb Type MWS A

E-4 - MWS Linear - 14' Curb Type MWS F

E-22 - MWS Linear - 22' Grate Type MWS G

E-23 - MWS Linear - 14' UG Curb Type (this is an underground unit, meaning it has a solid concrete ADA compliant lid, so it can be placed under the sidewalk) MWS C

E-28 - MWS Linear - 14' Curb Type MWS D

E-38 - MWS Linear - 22' Grate Type MWS E

E-39 - MWS Linear - 14' Grate Type MWS F

E-40 - MWS Linear - 14' Grate Type MWS H

We reviewed the Q100 and Qbmp flow rates for each area confirm the size and type of the system can treat and bypass flows appropriately. We assumed the treatment intensity is .2 in/hr.

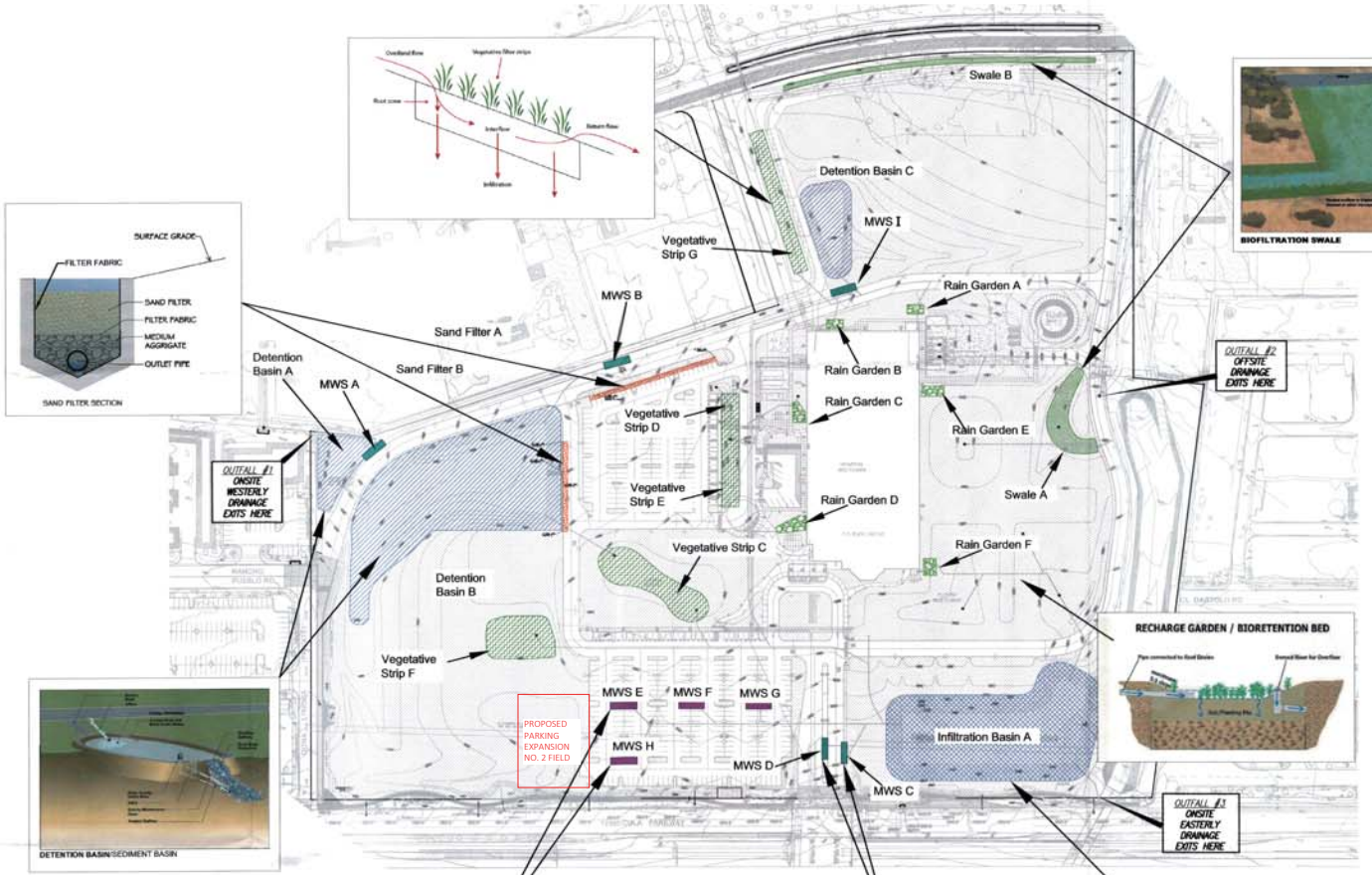
All drawings have been changed to show 12" diameter outflow pipes.

Let us know if you need anything else.

Sincerely,

Zach J Kent, CISEC
Stormwater Engineer
zkent@biocleanenvironmental.com
zach@modularwetlands.com

Bio Clean Environmental Services, Inc.
Modular Wetland Systems, Inc.
P.O Box 869, Oceanside, CA 92049
Phone: 760.433.7640



BMP SITE PLAN - PHASE I

Client:
Universal Health Services, Inc
367 South Gulph Road
King of Prussia, PA 19406
T 610 768 3300

Architect of Record:
HMC Architects
1010 Second Ave, Studio 810,
West Tower
San Diego, CA 92101
T 619 744 4077

Civil Engineer:
URS
1950 Stemmons Freeway,
Suite 6000
Dallas, Texas 75207
(214) 741-7777
(214) 741-9413 Fax

Design/Build Partners:
Turner Construction Company
DPR Construction Inc.

Temecula Valley Hospital
Temecula, CA.

Agency Approval
REVIEWED IN ACCORDANCE WITH THE REQUIREMENTS OF T24, NOT APPROVED
Office of Statewide Health Planning & Development Facilities Development Division
OSHPD NO.

HMC Project No. 2308006

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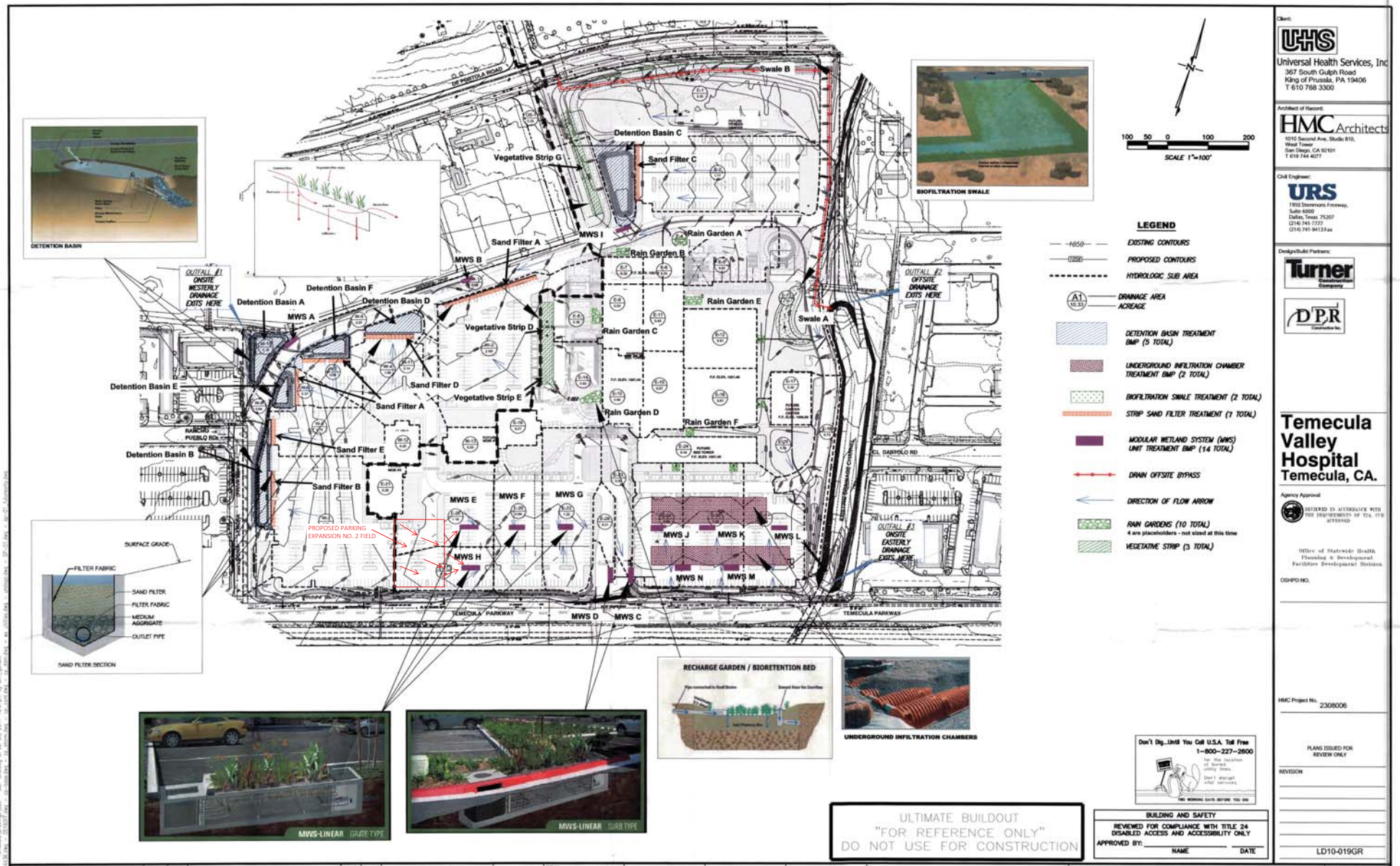
CONSTRUCTION RECORD	DATE	BY	REVISIONS	ACC'D	DATE	BENCH MARK	SCALE	SEAL: PROGRESS PRINT	Designed By	Drawn By	Checked By
Contractor						SM-SW63 STAMPED ON 3 & 1/2" BRASS DISK K-62 TIED LOCATED 2.0 MILES SOUTHEAST ON TEMECULA PARKWAY FROM MAIN STREET, 1.6 MILES SOUTH ON RANDOM CANYON ROAD.	HORIZONTAL	THIS DOCUMENT MAY NOT BE USED FOR CONSTRUCTION. RELEASED UNDER AUTHORITY OF: MARGIE M DE LAURELL, P.E. CALIFORNIA P.E. #C-59448	SEL	MDL	
Inspector							VERTICAL		Plans Prepared Under Supervision Of: MARGIE MARIE DE LAURELL R.C.E. NO. C59448	DATE 6/28/11	
Date Completed						ELEVATION: 1305.49' DATE: 9-01-02					

RECOMMENDED BY: _____ DATE: _____
ACCEPTED BY: _____ DATE: _____
GREG BUTLER
DIRECTOR OF PUBLIC WORKS/CITY ENGINEER
R.C.E. NO. 47109

CITY OF TEMECULA DEPARTMENT OF PUBLIC WORKS

TEMECULA VALLEY HOSPITAL
PHASE I BMP PLAN
PM 32468/PA10-0194

Drawing No. WQMP-1
Sheet 1 OF 7



ULTIMATE BUILDOUT
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BUILDING AND SAFETY
REVIEWED FOR COMPLIANCE WITH TITLE 24 DISABLED ACCESS AND ACCESSIBILITY ONLY
APPROVED BY: _____ NAME _____ DATE

Client:
Universal Health Services, Inc
367 South Gulph Road
King of Prussia, PA 19406
T 610 768 3300

Architect of Record:
HMC Architects
1010 Second Ave, Studio 810,
West Tower
San Diego, CA 92101
T 619 744 4077

Civil Engineer:
URS
1950 Stemmons Freeway,
Suite 6000
Dallas, Texas 75207
(214) 741-7727
(214) 741-9413 Fax

Design/Build Partners:
Turner Construction Company
DPR Construction Inc.

Temecula Valley Hospital
Temecula, CA.

Agency Approval
REVIEWED IN ACCORDANCE WITH THE REQUIREMENTS OF Tit. 22 CCR AS AMENDED
Office of Statewide Health Planning & Development Facilities Development Division
OSHPD NO.

HMC Project No. 2308006

PLANS ISSUED FOR REVIEW ONLY

REVISION

LD10-019GR

CONSTRUCTION RECORD	DATE	BY	REVISIONS	ACC'D	DATE	BENCH MARK	SCALE
Contractor						BM-1 (BM13) STAMPED ON 3 & 1/2" BRASS DISK K-62 1927 LOCATED 3.0 MILES SOUTHEAST OF TEMECULA FAIRWAY FROM MAIN STREET, 1.6 MILES SOUTH ON RANCHO CANYON ROAD.	HORIZONTAL
Inspector							
Date Completed						ELEVATION 1309.49' DATUM 9-01-85	VERTICAL

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SEL		MDL

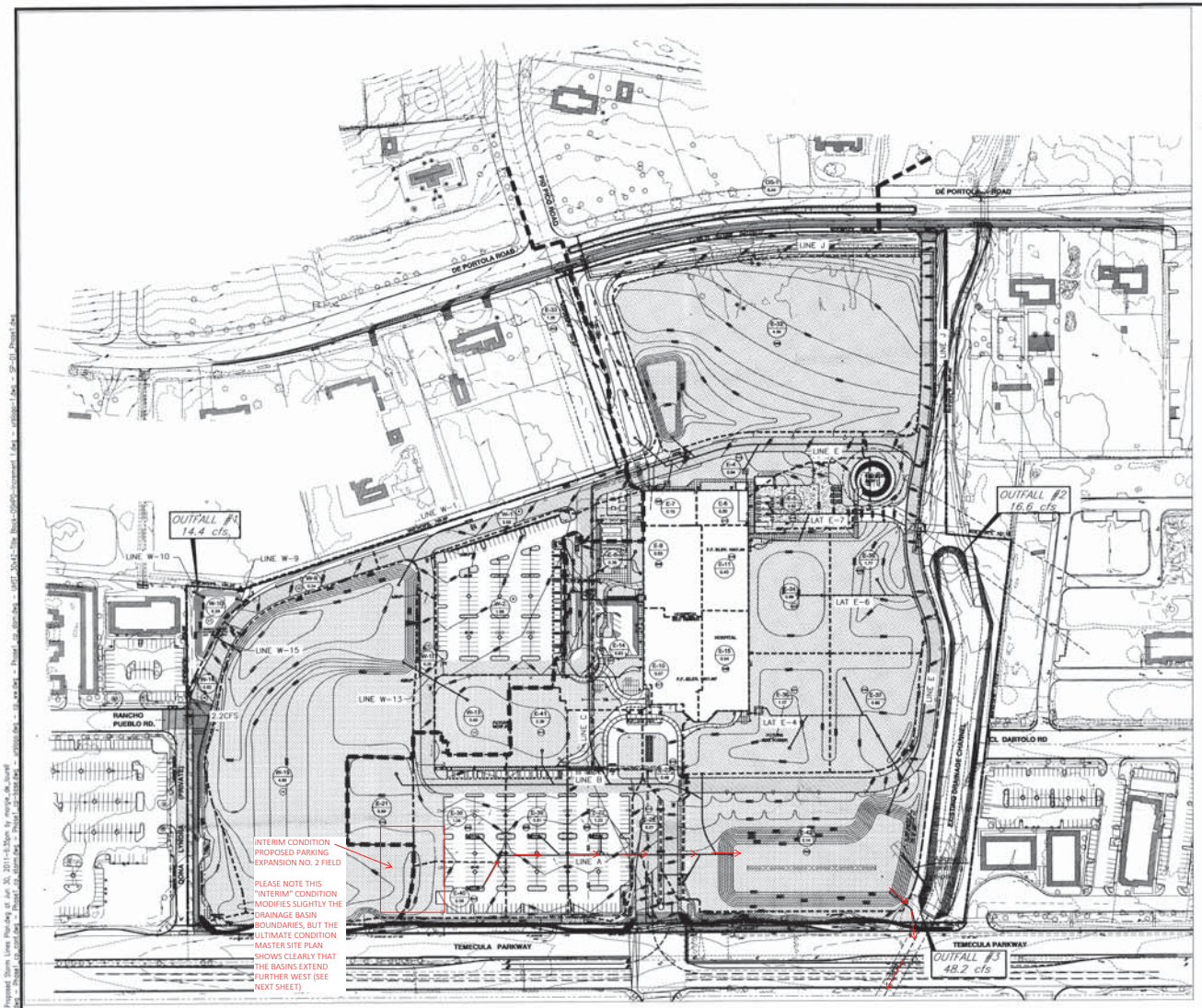
Plans Prepared Under Supervision Of
MARGIE MARIE DE LAURELL
R.C.E. NO. C59448
DATE 6/28/11

RECOMMENDED BY: _____ DATE: _____
ACCEPTED BY: _____ DATE: _____
GREG BUTLER
DIRECTOR OF PUBLIC WORKS/CITY ENGINEER
R.C.E. NO. 47109

CITY OF TEMECULA DEPARTMENT OF PUBLIC WORKS

TEMECULA VALLEY HOSPITAL
WQMP BMP PLAN
PM 32468/PA10-0194

Drawing No. WQMP-2
Sheet 2 OF 7



LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- DRAINAGE AREA DIVIDES
- EAST/WEST DRAINAGE AREAS BOUNDARY
- A1 / 10.33 — DRAINAGE AREA / ACREAGE
- OUTFALL #1 — OUTFALL NUMBER

100 50 0 100 200

LEGEND

- PROPOSED STORM PIPE
- DRAINAGE BOUNDARY LINE
- PROPOSED INLET STRUCTURE
- DETENTION BASIN STAND PIPE
- PROPOSED HEADWALL
- PROPOSED LANDSCAPED AREA
- TO BE CONSTRUCTED WITH STREET IMPROVEMENT PLANS.
- 130 — NODE #

OUTFALL #2 - OFFSITE

DRAINAGE AREA	AREA (ACRES)	C	I_{100} (in/hr)	Q_{100} (cfs)
OS-1	8.44	0.83	4.6	16.6

OUTFALL #1 - WEST

DRAINAGE AREA	AREA (ACRES)	C	I_{100} (in/hr)	Q_{100} (cfs)
W-1	0.68	0.89	3.9	2.4
W-2	1.88	0.89	4.0	6.8
W-9	0.34	0.89	3.6	1.1
W-10	0.28	0.89	3.6	0.9
W-11	0.25	0.89	4.0	0.9
W-13	0.49	0.85	4.0	1.7
W-15	4.85	0.85	2.9	11.8
TOTAL	8.77			

RUNOFF TO RANCHO PUEBLO RD

DRAINAGE AREA	AREA (ACRES)	C	I_{100} (in/hr)	Q_{100} (cfs)
W-14	0.82	0.84	3.1	2.2

OUTFALL #3 - EAST

DRAINAGE AREA	AREA (ACRES)	C	I_{100} (in/hr)	Q_{100} (cfs)
E-4	0.84	0.89	4.0	2.9
E-5	0.62	0.89	4.8	2.7
E-6	0.20	0.89	5.1	0.9
E-7	0.15	0.89	5.1	0.7
E-8	0.38	0.89	4.5	1.5
E-9	0.53	0.89	4.7	2.2
E-10	0.57	0.89	4.5	2.3
E-11	0.43	0.89	4.5	1.7
E-14	0.83	0.89	4.0	2.9
E-15	0.54	0.89	4.1	2.0
E-21	0.50	0.84	3.3	1.4
E-22	1.22	0.89	4.2	4.5
E-23	0.48	0.89	3.9	1.7
E-28	0.21	0.89	4.8	0.9
E-32	4.30	0.83	2.7	9.6
E-33	1.26	0.82	2.4	2.5
E-34	0.86	0.85	3.4	2.4
E-35	1.77	0.83	2.7	4.0
E-36	1.17	0.84	2.8	2.8
E-37	0.85	0.83	3.3	2.4
E-38	1.06	0.89	4.3	4.1
E-39	0.81	0.89	5.1	3.7
E-40	0.58	0.89	4.9	2.5
E-41	0.39	0.84	3.2	1.0
E-42	3.14	0.83	2.5	6.6
TOTAL	23.69			



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REVIEWED FOR COMPLIANCE WITH TITLE 24 DISABLED ACCESS AND ACCESSIBILITY ONLY
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Client:
UHS
Universal Health Services, Inc
367 South Gulph Road
King of Prussia, PA 19406
T 610 768 3300

Architect of Record:
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1010 Second Ave, Studio 810,
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Civil Engineer:
URS
1950 Stemmons Freeway,
Suite 6000
Dallas, Texas 75207
(214) 741-7777
(214) 741-9413 Fax

Design/Build Partners:
Turner Construction Company
DPR Construction Inc.

Temecula Valley Hospital
Temecula, CA.

Agency Approval
REVIEWED IN ACCORDANCE WITH THE REQUIREMENTS OF T24, CCR
APPROVED
Office of Statewide Health Planning & Development
Facilities Development Division
OSHPD NO.

HMC Project No. 2308006

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LD10-019GR

REVISED BID DOCUMENTS 06-28-2011

CONSTRUCTION RECORD	DATE	BY	REVISIONS	ACC'D	DATE	BENCH MARK	SCALE
Contractor _____						BM "CB&S" STAMPED ON 3 & 1/2" BRASS DISK K-62 1927 LOCATED 2.0 MILES SOUTHEAST ON TEMECULA PARKWAY FROM MAIN STREET, 1.8 MILES SOUTH ON RAINBOW CANYON ROAD.	HORIZONTAL
Inspector _____							
Date Completed _____						ELEVATION 1,303.49' DATUM: M.S.L. DATE: 8-01-62	VERTICAL

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SEL		MDL

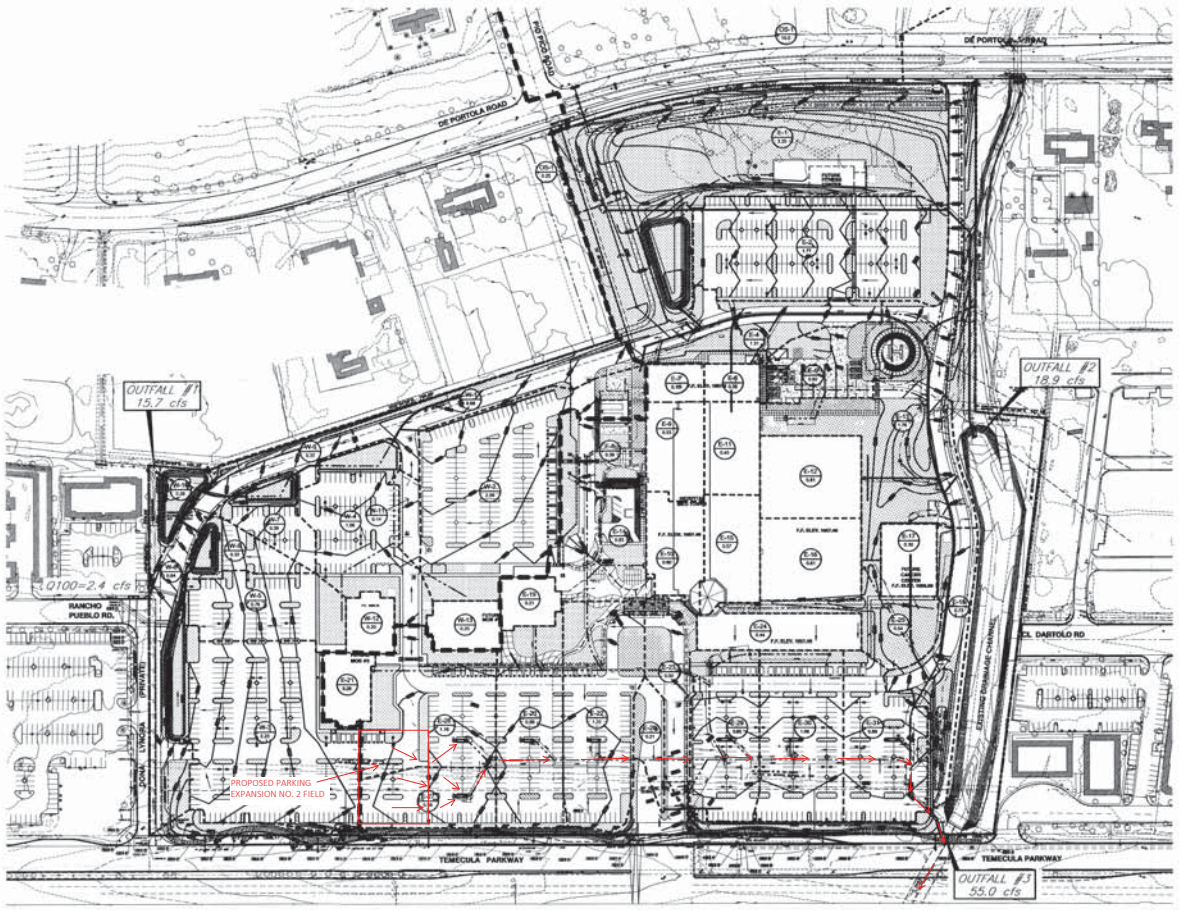
Plans Prepared Under Supervision Of
MARGIE MARIE DE LAURELL
R.C.E. NO. C59448
DATE 6/28/11

RECOMMENDED BY: _____ DATE: _____
ACCEPTED BY: _____ DATE: _____
GREG BUTLER
DIRECTOR OF PUBLIC WORKS/CITY ENGINEER
R.C.E. NO. 47109

CITY OF TEMECULA DEPARTMENT OF PUBLIC WORKS

TEMECULA VALLEY HOSPITAL
PHASE 1 DRAINAGE AREA MAP
PM 32468/PA10-0194

Drawing No. WQMP -3
Sheet 3 of 7



LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- DRAINAGE AREA DIVIDES
- EAST/WEST DRAINAGE AREAS BOUNDARY
- A1 / 10.33 — DRAINAGE AREA / ACREAGE
- TO BE CONSTRUCTED WITH STREET IMPROVEMENT PLANS.
- OUTFALL #1 — OUTFALL NUMBER
- EXISTING OR PROPOSED LANDSCAPED AREAS

N

100 50 0 100 200
SCALE 1"=100'

OUTFALL #2 - OFFSITE

DRAINAGE AREA	AREA (ACRES)	C	I100 (in/hr)	Q100 (cfs)
OS-1	10.0	0.83	2.3	18.9

OUTFALL #1 - WEST

DRAINAGE AREA	AREA (ACRES)	C	I100 (in/hr)	Q100 (cfs)
W-1	0.68	0.89	3.9	2.4
W-2	2.09	0.89	3.8	7.1
W-3	2.23	0.89	3.6	7.1
W-4	1.06	0.89	3.6	3.4
W-5	0.78	0.89	3.6	2.5
W-6	0.32	0.89	3.5	1.0
W-7	0.38	0.89	3.4	1.1
W-8	0.64	0.89	4.2	2.4
W-9	0.37	0.89	3.3	1.1
W-10	0.28	0.89	3.3	0.8
W-11	0.14	0.89	3.5	0.4
W-12	0.20	0.89	4.7	0.8
W-13	0.25	0.89	5.1	1.1
TOTAL	9.42			

OUTFALL #3 - EAST

DRAINAGE AREA	AREA (ACRES)	C	I100 (in/hr)	Q100 (cfs)
E-1	3.35	0.83	2.7	7.7
E-2	1.77	0.89	4.1	6.5
E-4	1.31	0.89	4.1	4.7
E-5	0.62	0.89	5.1	2.8
E-6	0.20	0.89	4.8	0.9
E-7	0.15	0.89	5.1	0.7
E-8	0.38	0.89	4.5	1.5
E-9	0.53	0.89	4.8	2.3
E-10	0.60	0.89	4.6	2.3
E-11	0.43	0.89	4.5	1.7
E-12	0.61	0.89	4.3	2.3
E-13	1.76	0.89	3.8	5.9
E-14	0.83	0.89	4.0	3.0
E-15	0.57	0.89	4.4	2.2
E-16	0.61	0.89	4.4	2.4
E-17	0.30	0.89	4.7	1.2
E-18	0.73	0.89	3.5	2.3
E-19	0.21	0.89	5.1	1.0
E-20	0.99	0.89	4.6	4.1
E-21	0.26	0.89	4.9	1.1
E-22	1.22	0.89	4.4	4.8
E-23	0.50	0.89	4.0	1.8
E-24	0.44	0.89	4.1	1.6
E-25	0.54	0.89	4.8	2.3
E-26	1.18	0.89	4.4	4.6
E-27	0.56	0.89	4.5	2.3
E-28	0.21	0.89	4.4	0.8
E-29	0.85	0.89	4.5	3.4
E-30	1.06	0.89	4.3	4.1
E-31	0.89	0.89	4.6	3.6
TOTAL	24.02			

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(214) 741-9413 Fax

Design/Build Partners:
Turner Construction Company
DPR Construction Inc.

Temecula Valley Hospital
Temecula, CA.

Agency Approval
REVIEWED IN ACCORDANCE WITH THE REQUIREMENTS OF T24, CCR APPROVED
Office of Statewide Health Planning & Development Facilities Development Division
OSHPD NO.

HMC Project No. 2308006

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REVISED BID DOCUMENTS 06-28-2011

LD10-019GR

CONSTRUCTION RECORD	DATE	BY	REVISIONS	ACC'D	DATE	BENCH MARK	SCALE
Contractor						56'-CSHES STAMPED ON 3 & 1/2" BRASS DISK K-62 1927 LOCATED 2.0 MILES SOUTHEAST ON TEMECULA PARKWAY FROM MAIN STREET, 1.8 MILES SOUTH ON RAINBOW CANYON ROAD. ELEVATION: 1302.48' DATE: 8-01-62	HORIZONTAL
Inspector							VERTICAL
Date Completed							

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Designed By	Drawn By	Checked By
SEL		MDL

Plans Prepared Under Supervision Of
MARGIE MARIE DE LAURELL
R.C.E. NO. C59448
DATE 6/28/11

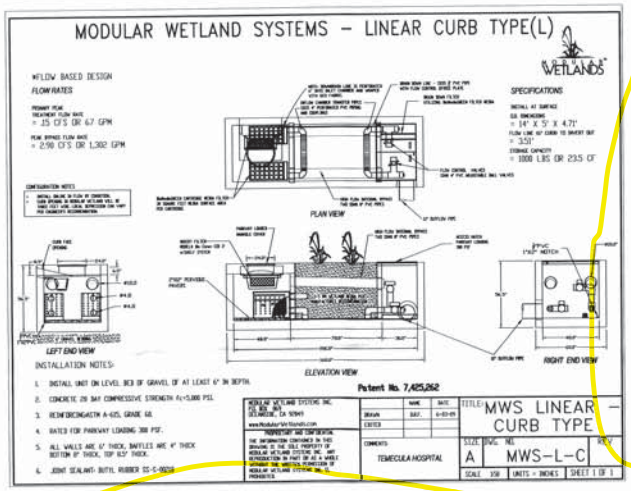
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ACCEPTED BY: _____ DATE: _____
GREG BUTLER
DIRECTOR OF PUBLIC WORKS/CITY ENGINEER
R.C.E. NO. 47109

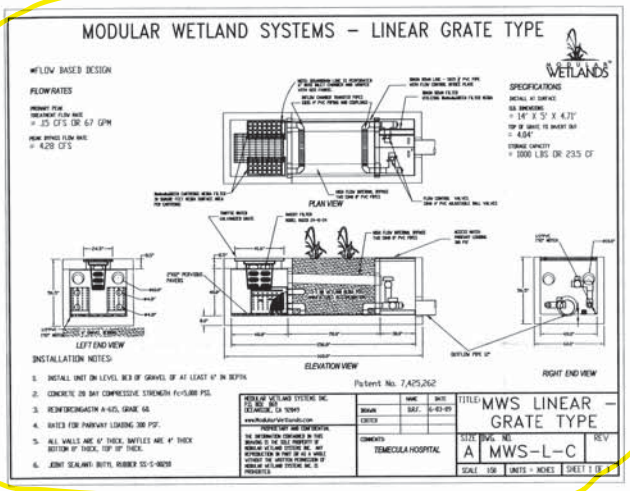
CITY OF TEMECULA DEPARTMENT OF PUBLIC WORKS

TEMECULA VALLEY HOSPITAL
ULTIMATE PROPOSED HYDROLOGY
PM 32468/PA10-0194

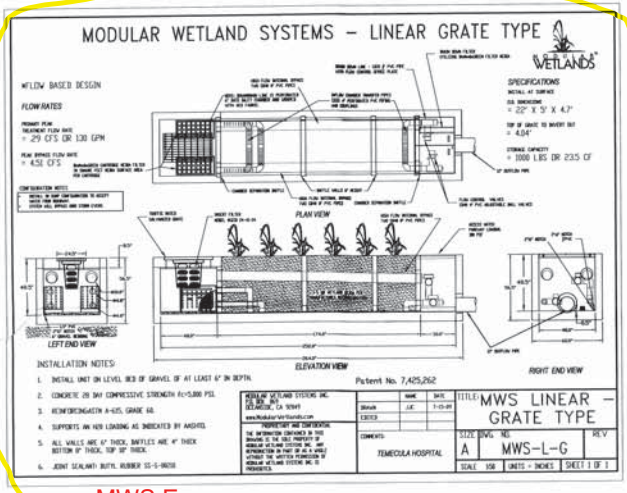
Drawing No.
WQMP - 4
Sheet 4 of 7

Drawing: P:\JM\32512.00 - temecula\Drawings\C18 - Overall Proposed Hydrology.dwg at Jun 30, 2011-6:38pm by margie_de_laurell

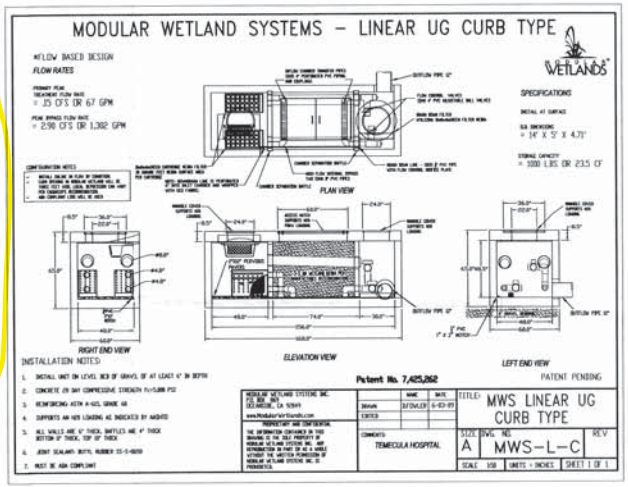




MWS H
(SERVES ULTIMATE
BASIN E27 @ 0.58 ACRES)



MWS E
(SERVES ULTIMATE BASIN
E26 @ 1.16 ACRES)



Client:
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CONSTRUCTION RECORD	DATE	BY	REVISIONS	ACC'D	DATE	BENCH MARK	SCALE	SEAL: PROGRESS PRINT	Designed By	Drawn By	Checked By
Contractor						BM=DESCR: STAMPED ON 3 & 1/2" BRASS DISK K-62 1927 LOCATED 2.0 MILES SOUTHEAST ON TEMECULA PARKWAY FROM MAIN STREET, 1.8 MILES SOUTH ON RAINBOW CANYON ROAD.	HORIZONTAL	THIS DOCUMENT MAY NOT BE USED FOR CONSTRUCTION, RELEASED UNDER AUTHORITY OF: MARGIE M DE LAURELL, P.E. CALIFORNIA P.E. #C-59448	SEL		MDL
Inspector							VERTICAL				6/28/11
Date Completed						ELEVATION: 1303.491' DATE: 8-01-82					

RECOMMENDED BY: _____ DATE: _____

ACCEPTED BY: _____ DATE: _____
GREG BUTLER
DIRECTOR OF PUBLIC WORKS/CITY ENGINEER
R.C.E. NO. 47109

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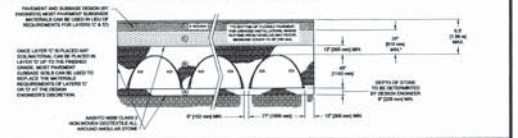
TEMECULA VALLEY HOSPITAL
WQMP & STORM DRAIN DETAILS
PM 32468/PA10-0194

Drawing No.
WQMP - 6
Sheet 6 of 7

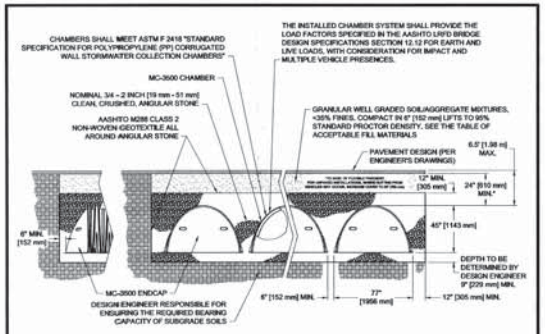
ACCEPTABLE FILL MATERIALS: STORMTECH MC-3500 CHAMBER SYSTEMS

MATERIAL LOCATION	DESCRIPTION	AASHTO M43 DESIGNATION*	COMPACTION/DENSITY REQUIREMENT
⑤ FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
④ FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE (B) LAYER TO 24" (610 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THIS LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, < 35% FINES. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTION AFTER 24" (610 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (152 mm) MAX LIFTS TO A MIN. 95% STANDARD PROCTOR DENSITY.
③ EMBEDMENT STONE SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE, NOMINAL SIZE DISTRIBUTION BETWEEN 3/4 - 2 INCH (19 - 51 mm)	3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
② FOUNDATION STONE BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE, NOMINAL SIZE DISTRIBUTION BETWEEN 3/4 - 2 INCH (19 - 51 mm)	3, 35, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A MIN. STANDARD PROCTOR DENSITY 1

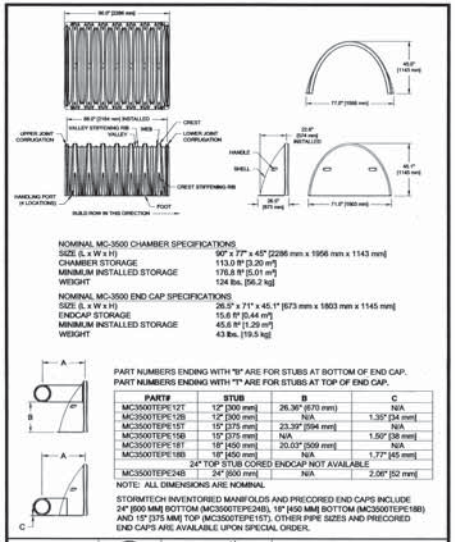
PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #1 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. AS AN ALTERNATE TO PROCTOR TESTING AND FIELD DENSITY MEASUREMENTS ON OPEN GRADED STONE, STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'F' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (229 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH AN APPROPRIATE COMPACTOR.



STORMTECH MC-3500 ACCEPTABLE FILL



MC-3500 TYPICAL CROSS-SECTION



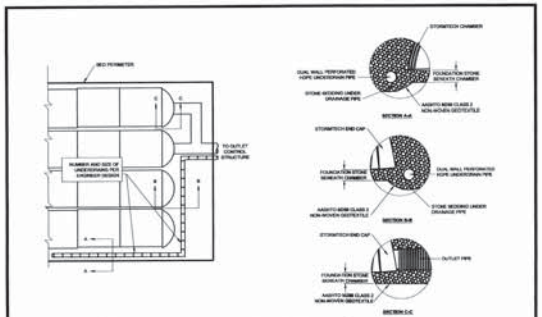
PART NUMBERS ENDING WITH "B" ARE FOR STUBS AT BOTTOM OF END CAP.
PART NUMBERS ENDING WITH "T" ARE FOR STUBS AT TOP OF END CAP.

PART#	STUB	B	C
MC3500TEPE12T	12" [300 mm]	26.36" (670 mm)	N/A
MC3500TEPE12B	12" [300 mm]	N/A	1.35" [34 mm]
MC3500TEPE15T	15" [375 mm]	23.39" [594 mm]	N/A
MC3500TEPE15B	15" [375 mm]	N/A	1.50" [38 mm]
MC3500TEPE18T	18" [450 mm]	20.03" [509 mm]	N/A
MC3500TEPE18B	18" [450 mm]	N/A	1.77" [45 mm]
	24" TOP STUB CORED ENDCAP NOT AVAILABLE		
MC3500TEPE24B	24" [600 mm]	N/A	2.06" [52 mm]

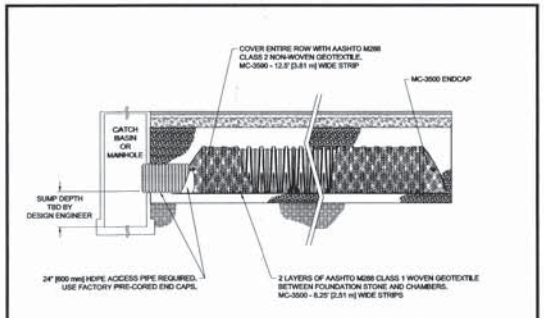
NOTE: ALL DIMENSIONS ARE NOMINAL

STORMTECH INVENTORIED MANIFOLDS AND PRECORED END CAPS INCLUDE 24" [600 MM] BOTTOM (MC3500TEPE24B), 18" [450 MM] BOTTOM (MC3500TEPE18B) AND 15" [375 MM] TOP (MC3500TEPE15T). OTHER PIPE SIZES AND PRECORED END CAPS ARE AVAILABLE UPON SPECIAL ORDER.

MC-3500 TECHNICAL SPECIFICATIONS



MC-3500 OUTLET/ UNDERDRAIN DETAIL



NOTE: FOR MANY APPLICATIONS, THE NON-WOVEN GEOTEXTILE OVER THE MC-3500 CHAMBERS CAN BE ELIMINATED OR SUBSTITUTED WITH THE AASHTO CLASS 1 WOVEN GEOTEXTILE. CONTACT YOUR STORMTECH REPRESENTATIVE FOR ASSISTANCE.

MC-3500 ISOLATOR™ ROW PROFILE

NOTE:
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Civil Engineer:
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(214) 741-7777
(214) 741-9413 Fax

Design/Build Partners:
Turner Construction Company
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Temecula Valley Hospital
Temecula, CA.

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OSHPD NO.

HMC Project No. 2308006

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LD10-019GR

REVISED BID DOCUMENTS 06-28-2011

CONSTRUCTION RECORD	DATE	BY	REVISIONS	ACC'D	DATE	BENCH MARK	SCALE
Contractor						BM-CSS03 STAMPED ON 3 & 1/2" BRASS DISK K-62 1927 LOCATED 3.0 MILES SOUTHEAST ON TEMECULA PARKWAY FROM MAIN STREET, 1.8 MILES SOUTH ON RAINBOW CANYON ROAD.	HORIZONTAL
Inspector							
Date Completed						ELEVATION: 1302.491' DATE: 9-01-82	VERTICAL

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Designed By	Drawn By	Checked By
SEL		MDL
		6/28/11

RECOMMENDED BY: _____ DATE: _____
ACCEPTED BY: _____ DATE: _____
GREG BUTLER
DIRECTOR OF PUBLIC WORKS/CITY ENGINEER
R.C.E. NO. 47109

CITY OF TEMECULA DEPARTMENT OF PUBLIC WORKS

TEMECULA VALLEY HOSPITAL
STORM DRAIN DETAILS
PM 32468/PA10-0194

Drawing No. WQMP - 7
Sheet 7 of 7

Drawing: P:\UHS\2010\10-00 - temecula\Drawings\C3A-C3S - Storm Details.dwg at Jun 30, 2011-4:37pm by margie_de_laurel

ALL SOIL'S REPORTS

URS

1950 N.Stemmons Freeway, Suite 6000
Dallas, TX 75207
25338344.00006

Memorandum

2020 E. First Street, Suite 400
Santa Ana, CA 92705
Tel - (714) 835-6886
Fax - (714) 667-7147

TO: **Richard Carson**

FROM: **Michael Smith, G.E., Praveen Yerra, EIT**

DATE: **March 3, 2010**

SUBJECT: **Percolation Testing**
Temecula Regional Hospital, UHS Temecula, California
URS Job No. 25338344

1.0 INTRODUCTION

The purpose of this memo is to present the results of percolation testing for the subject project. This memorandum contains the description of the field investigation and testing conducted for the United Health Services in Temecula, California to evaluate the potential for percolation basins at the proposed Temecula Regional Hospital.

2.0 SITE LOCATION

The proposed Temecula Regional Hospital site is located to the west of the intersection of Temecula Parkway (Hwy 79) and Country Glenn way in the city of Temecula in Riverside County, California and is shown in figure 1 - Site vicinity map.

3.0 EXPLORATION PLAN

3.1 SUBSURFACE INVESTIGATION

Our field exploration for the purpose of the percolation testing involved drilling five hollow stem auger borings (B-1 through B-5) to depths of 16.5 feet in various locations of the site as shown in Figure 2-Site exploration plan. The borings were drilled using a truck-mounted CME 75 drill rig,

equipped with 8-inch diameter hollow-stem-auger drilling equipment, by our subcontractor, 2R Drilling of Chino, California. Earth materials encountered within the exploratory borings were classified and logged in accordance with the Unified Soil Classification System. Approximate locations of the borings are shown on Figure 2.

When subsurface conditions permitted, relatively undisturbed samples and Standard Penetration Tests (SPT) were performed in an alternating order at 5 feet intervals. The undisturbed samples were obtained using a California Soil Sampler (2.4 inch inside diameter). The SPTs were performed with a SPT sampler (1.4 inch inside diameter) without liners in accordance with the ASTM D 1586 guidelines. Both SPT and relatively undisturbed samples were driven 18 inches into the subsurface soils using a 140-pound automatic hammer with successive 30-inch drops. The number of blows required to drive the samplers into the subsurface soils was recorded at 6-inch intervals. The total number of blows required to drive the samplers the last 12 inches is recorded on the boring logs. Furthermore, bulk samples were taken from the upper 5 feet of each boring. Samples were placed in sealed containers and transported to our laboratory for testing. The boring logs are presented in Attachment A of this memorandum

Following drilling and sampling, a 3-inch diameter perforated casing was installed between depths of 5 to 15 feet below the existing ground surface and blank pipe above a depth of 5 feet, in borings B-1 through B-5, for percolation testing. In all five borings, the annular space around the perforated pipe was backfilled with ¾-inch well graded gravel to avoid the collapse / caving of the sidewalls of the test holes. All the boreholes were filled with water for pre-soaking before the actual test.

3.2 LABORATORY TESTING

In order to evaluate the soil classification of the onsite soils, laboratory tests were performed on the collected samples of the materials encountered during our investigation. Laboratory tests included the determination of in-place moisture content and dry density and grain size distribution. Results of the laboratory tests are provided in Attachment B, and test data are also presented on the exploration boring logs (Attachment A).

3.3 SUBSURFACE CONDITIONS

The general subsurface conditions for the site were evaluated using the findings of the five borings for the project.

The subsurface materials encountered in the percolation test borings at the existing grade generally consist of approximately 10 to 15 feet of interbedded silty sand and clayey sand materials at some locations the native is underlain by poorly graded sand material. The silty sand/clayey sand material had 15 to 35 percent passing the No. 200 sieve and poorly graded sand with 3 to 4 percent passing the No. 200 sieve. The soils were noted to be loose to medium dense based on the SPT blow count information.

3.4 GROUNDWATER

Groundwater was not encountered in any of the five borings drilled in the area investigated for potential percolation basin drilled to a maximum depth of 16.5 feet.

3.5 USDA SOIL SURVEY DATA

Data from the United States Department of Agriculture (USDA) soil survey maps and soil survey tables for the site were reviewed. The data for the subject site references Map Unit —Riverside County Western Riverside Area, California (CA679). Based on the available data, the soils at the project site are delineated by USDA are shown in Figure 3. Also, the details of the type of soils that are available at the site are compiled in Table 1.

TABLE 1: USDA SOIL SURVEY DATA

WESTERN RIVERSIDE AREA, CALIFORNIA (CA 679)			
Map Unit Symbol	**Map Unit Name**	**Hydrological Soil Group**	**USCS Classification**
GtA	Grangeville fine sandy loam, drained, 0 to 2 percent slopes	B	SM
GyC2	Greenfield sandy loam, 2 to 8 percent slopes, eroded	B	SM
RaB2	Ramona sandy loam, 2 to 5 percent slopes, eroded	B	SM
VlC2	Visalia sandy loam, 0 to 8 percent slopes, eroded	B	SM
VmA	Visalia fine sandy loam, 0 to 2 percent slopes	B	SM

Based on the available data the majority of the site soils are classified as Visalia fine sandy loam, 0 to 2 percent slopes with a map unit symbol VmA. Soils (in the upper 10 feet) are given a USCS soil classification as SM and SC and are anticipated to have a percolation rate between than 0.14 inches/hour to 1.42 inches/hour when thoroughly wet. These soils would have a very low to moderately low rate of water transmission.

3.6 PERCOLATION TESTING

Falling-head Percolation tests were performed in each of the four borings drilled within the potential percolation basin area utilizing the test procedure outlined by United States Bureau of Reclamation (USBR, 2001).

Prior to performing the percolation tests, all the sites were pre-soaked by filling the perforated casings with clear water. Following an approximately 24 hour pre-soak, the test borings were refilled with water to the existing ground surface. A water hose connected to a water tank was utilized to provide water. From a fixed reference point, the drop in water level was then measured at approximately 30-minute intervals.

In borings B-2, B-3 and B-4 (15-foot cased depth), the drop in water level was less than one-half of the wetted depth after ten consecutive trials of 30 minute intervals. Therefore, this test was continued over a period of 5-hours with water level readings taken at 30-minute intervals and the sixth hour with water level readings taken at 10-minute intervals. The percolation tests yielded percolation rates ranging from 0.1 to 0.8 inches/hour. In borings B-1 and B-5 (15-foot cased

depth), the drop in water level was higher than one-half of the wetted depth after 10 consecutive trials of 10 minute intervals. Therefore, the test was continued over a period of 3-hours with water level readings taken at 10-minute intervals. The percolation tests yielded percolation rates ranging from 2.6 to 3.4 inches/hour. The percolation test data and calculation sheets are presented in Attachment C.

A summary of the results of percolation tests is presented in Table 2.

TABLE 2: SUMMARY OF PERCOLATION TEST RESULTS

Boring/Test Number	Drilled Depth Below Existing Ground (feet)	Approximate Percolation Test Depth Interval Below Existing Ground (feet)	Percolation Rate (gallons/sq. ft./day)	Percolation Rate (inches/hour)
B-1	16.5	5 – 16.5	39.7	2.6
B-2	16.5	5 – 16.5	11.3	0.8
B-3	16.5	5 – 16.5	1.5	0.1
B-4	16.5	5 – 16.5	6.6	0.4
B-5	16.5	5 – 16.5	50.4	3.4

4.0 CONCLUSIONS

Based on the data presented herein, the percolation rate is found to be less than 0.5 inches/hour in B-3 and B-4 but is higher than 0.5 inches/hour in the rest of the borings. Based on the criteria set forth by Riverside County, for a site to be considered a potential percolation basin site, the percolation rate should be higher than 0.5 inches/hour. From the percolation rate calculations presented in Attachment C, the locations where borings B-3 and B-4 are drilled are not suitable as a percolation basin. The locations where borings B-1, B-2 and B-5 are drilled, are potential percolation basin sites with percolation rates higher than 0.5 inches/hour.

It has to be noted that in borings B-1 and B-5, the upper 15 and 10 feet has silty sand and clayey sand layers respectively with higher fines contents that could affect the rate of percolation. It is recommended, at these locations, to design the bottom of the basin at an elevation below the silty sand/clayey sand layers or include alternatives to reach in close proximity of the poorly graded sand layer that is encountered at depths of 15 feet below ground surface (bgs) at the location of the boring B-1 and 10 feet bgs at the location of boring B-5 respectively to achieve higher percolation rates.

5.0 LIMITATIONS

This memorandum has been prepared to be used solely in the design of the project described in this memorandum. This memorandum may not contain sufficient information for other uses or the purposes of other parties.

The conclusions presented in this report are based upon the assumption that the subsurface conditions do not deviate appreciably from those disclosed by the exploratory borings described herein. In view of the general geology of the area, the possibility of different conditions cannot be discounted.

Professional judgments presented in this memorandum are based on an evaluation of the technical information gathered, the understanding of the proposed construction, and the general experience in the field of geotechnical engineering. URS does not guarantee the performance of the project in any respect, only that the engineering work and judgments rendered meet the standard of care in the profession at this time and location.

6.0 REFERENCES

1. United States Bureau of Reclamation (USBR) 2001. Engineering Geology Second Edition Volume 2. Chapter 17 Water Testing for Permeability.
2. USDA Soil Survey Data and Maps *http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx*

- o0o -

We hope this memorandum meets your current project needs. If you have any questions or require additional information, please contact us.

Sincerely,
URS CORPORATION

Michael G. Smith
Principal Engineer
GE 2229 Exp. 03/31/10

Praveen Yerra, EIT
Engineer

Tables

Table 1 USDA Soil Survey Data

Table 2 Summary of Percolation Test Results

Figures

Figure 1 Site Vicinity Map

Figure 2 USDA Soil survey delineation

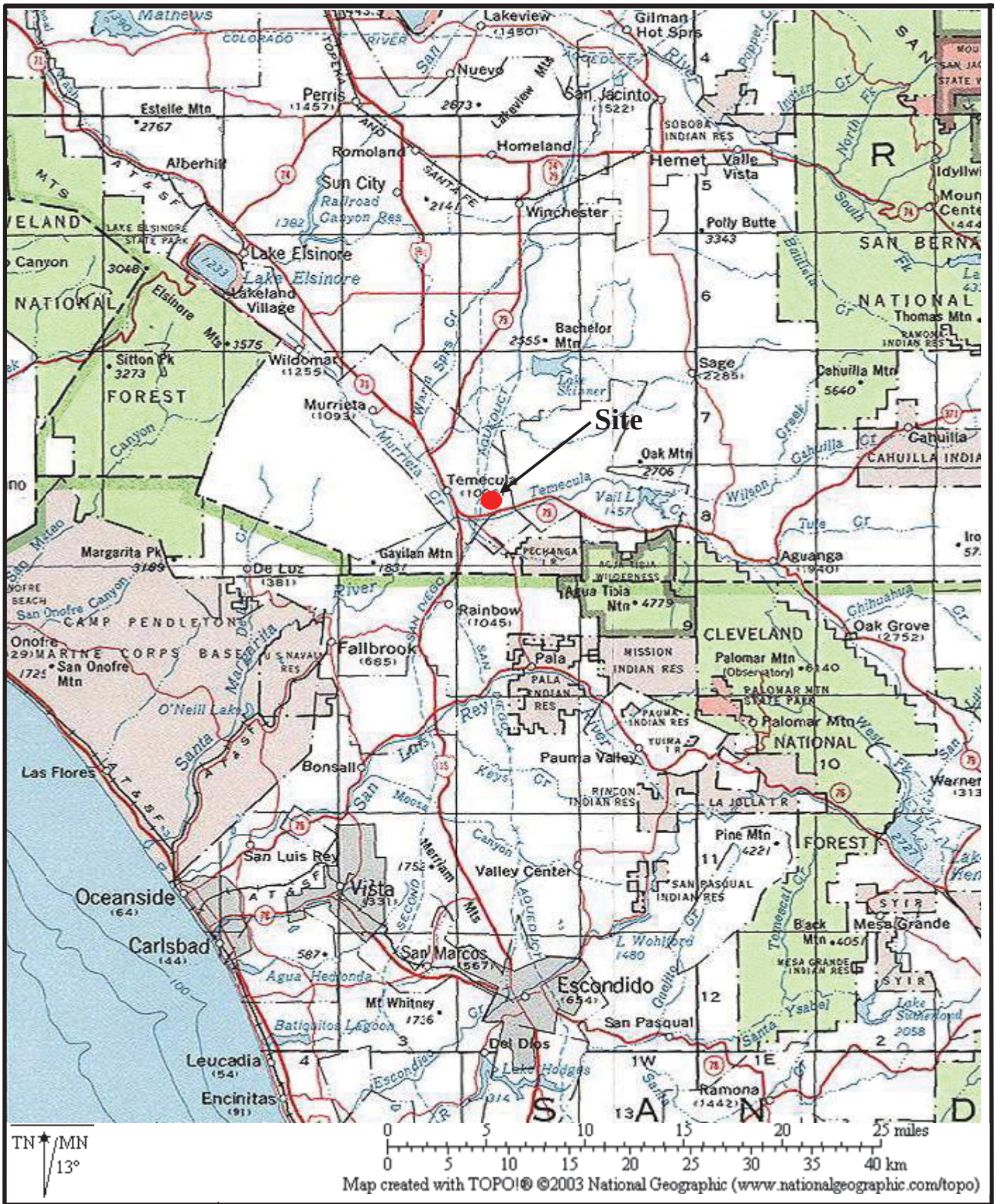
Figure 3 Site Exploration Plan

Attachment A Boring Logs

Attachment B Laboratory Test Results

Attachment C Percolation Test Data and Calculations

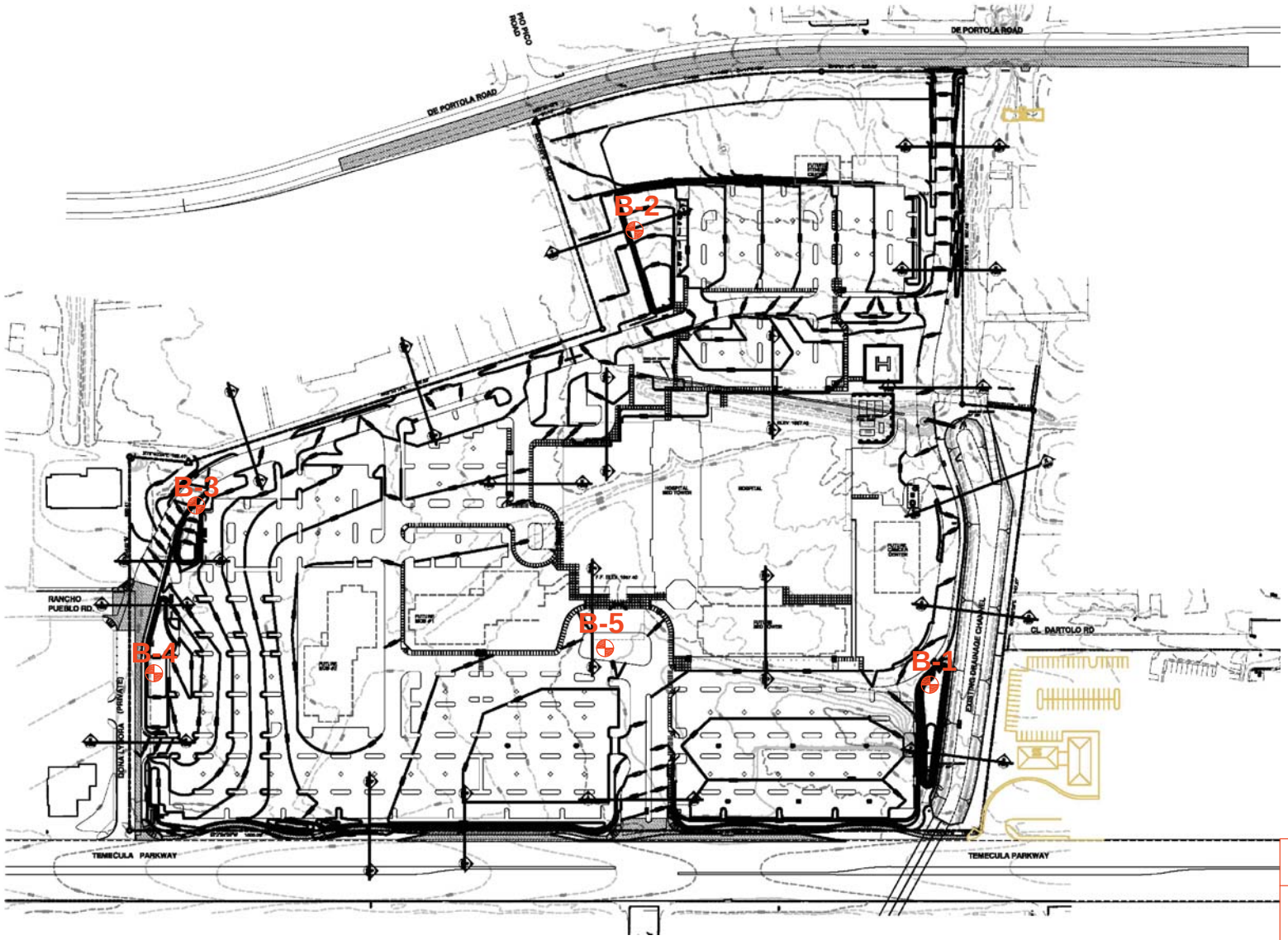
FIGURES



February 2010	Percolation Testing Memorandum	UHS Temecula Percolation Testing
		Site Vicinity Map

URS

FIGURE 1



NOT TO SCALE

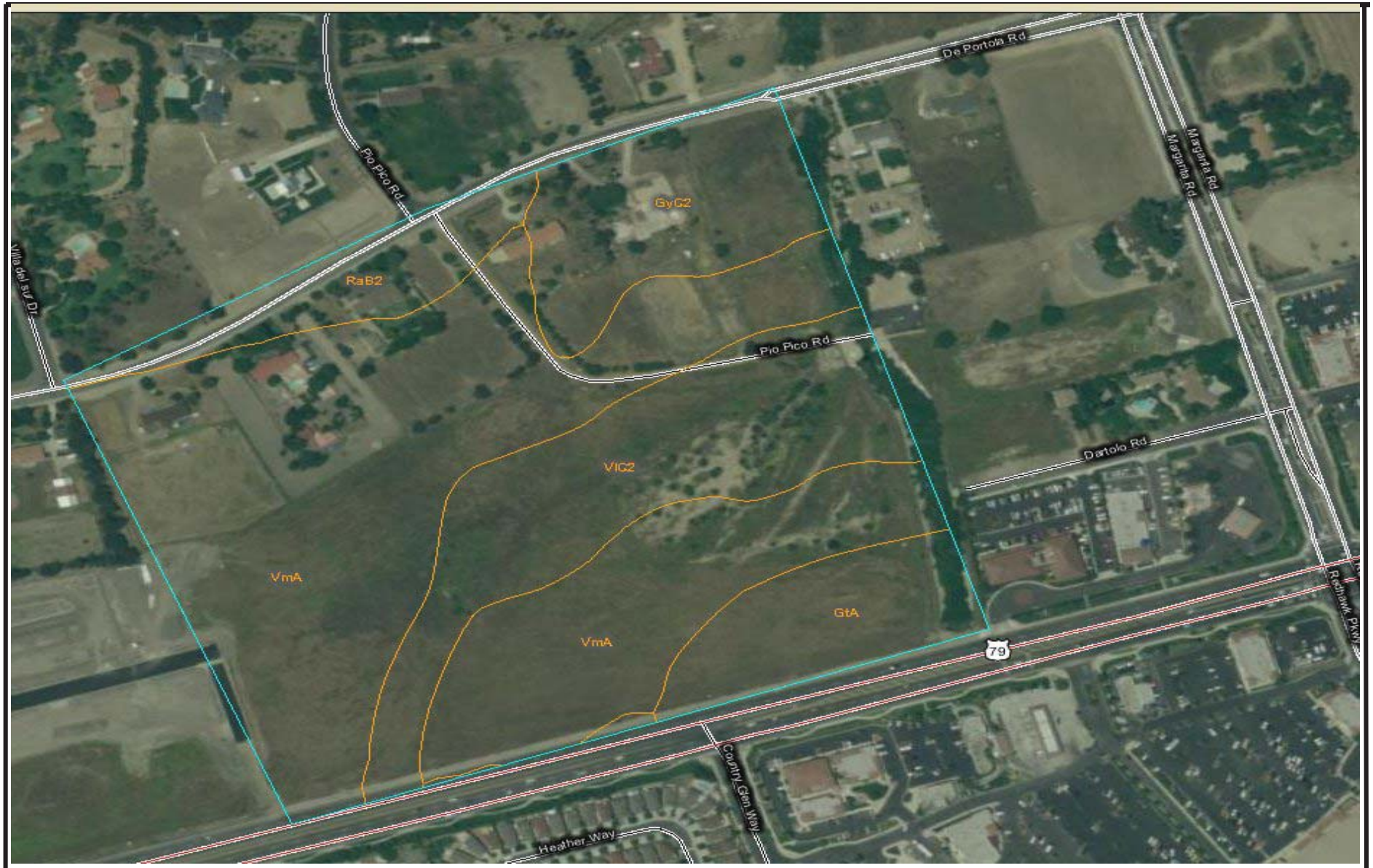
B-5 LEGEND

URS Boring and Percolation Testing Location

URS

Site Exploration Plan

Proj. No.: 25338344	Date: February 2010
Project: UHS Temecula Regional Hospital Percolation Testing, Temecula, CA	Figure: 2



February 2010	Percolation Testing Memorandum	UHS Temecula Percolation Testing
		USDA Soil Survey Delineation

URS

FIGURE 3

ATTACHMENT A
BORING LOGS

Project: UHS Temecula Percolation Testing
Project Location: Temecula, CA
Project Number: 25338344

Key to Log of Boring

Sheet A-1

GROUP SYMBOLS AND NAMES

Graphic / Symbol	Group Names	Graphic / Symbol	Group Names
GW	Well-graded GRAVEL Well-graded GRAVEL with SAND	CL	Lean CLAY Lean CLAY with SAND Lean CLAY with GRAVEL SANDY lean CLAY SANDY lean CLAY with GRAVEL GRAVELLY lean CLAY GRAVELLY lean CLAY with SAND
GP	Poorly graded GRAVEL Poorly graded GRAVEL with SAND		
GW-GM	Well-graded GRAVEL with SILT Well-graded GRAVEL with SILT and SAND	CL-ML	SILTY CLAY SILTY CLAY with SAND SILTY CLAY with GRAVEL SANDY SILTY CLAY SANDY SILTY CLAY with GRAVEL GRAVELLY SILTY CLAY GRAVELLY SILTY CLAY with SAND
GW-GC	Well-graded GRAVEL with CLAY (or SILTY CLAY) Well-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		
GP-GM	Poorly graded GRAVEL with SILT Poorly graded GRAVEL with SILT and SAND	ML	SILT SILT with SAND SILT with GRAVEL SANDY SILT SANDY SILT with GRAVEL GRAVELLY SILT GRAVELLY SILT with SAND
GP-GC	Poorly graded GRAVEL with CLAY (or SILTY CLAY) Poorly graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		
GM	SILTY GRAVEL SILTY GRAVEL with SAND	OL	ORGANIC lean CLAY ORGANIC lean CLAY with SAND ORGANIC lean CLAY with GRAVEL SANDY ORGANIC lean CLAY SANDY ORGANIC lean CLAY with GRAVEL GRAVELLY ORGANIC lean CLAY GRAVELLY ORGANIC lean CLAY with SAND
GC	CLAYEY GRAVEL CLAYEY GRAVEL with SAND		
GC-GM	SILTY, CLAYEY GRAVEL SILTY, CLAYEY GRAVEL with SAND	OL	ORGANIC SILT ORGANIC SILT with SAND ORGANIC SILT with GRAVEL SANDY ORGANIC SILT SANDY ORGANIC SILT with GRAVEL GRAVELLY ORGANIC SILT GRAVELLY ORGANIC SILT with SAND
SW	Well-graded SAND Well-graded SAND with GRAVEL		
SP	Poorly graded SAND Poorly graded SAND with GRAVEL	CH	Fat CLAY Fat CLAY with SAND Fat CLAY with GRAVEL SANDY fat CLAY SANDY fat CLAY with GRAVEL GRAVELLY fat CLAY GRAVELLY fat CLAY with SAND
SW-SM	Well-graded SAND with SILT Well-graded SAND with SILT and GRAVEL		
SW-SC	Well-graded SAND with CLAY (or SILTY CLAY) Well-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)	MH	Elastic SILT Elastic SILT with SAND Elastic SILT with GRAVEL SANDY elastic SILT SANDY elastic SILT with GRAVEL GRAVELLY elastic SILT GRAVELLY elastic SILT with SAND
SP-SM	Poorly graded SAND with SILT Poorly graded SAND with SILT and GRAVEL		
SP-SC	Poorly graded SAND with CLAY (or SILTY CLAY) Poorly graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)	OH	ORGANIC fat CLAY ORGANIC fat CLAY with SAND ORGANIC fat CLAY with GRAVEL SANDY ORGANIC fat CLAY SANDY ORGANIC fat CLAY with GRAVEL GRAVELLY ORGANIC fat CLAY GRAVELLY ORGANIC fat CLAY with SAND
SM	SILTY SAND SILTY SAND with GRAVEL		
SC	CLAYEY SAND CLAYEY SAND with GRAVEL	OH	ORGANIC elastic SILT ORGANIC elastic SILT with SAND ORGANIC elastic SILT with GRAVEL SANDY elastic ELASTIC SILT SANDY ORGANIC elastic SILT with GRAVEL GRAVELLY ORGANIC elastic SILT GRAVELLY ORGANIC elastic SILT with SAND
SC-SM	SILTY, CLAYEY SAND SILTY, CLAYEY SAND with GRAVEL		
PT	PEAT	OL/OH	ORGANIC SOIL ORGANIC SOIL with SAND ORGANIC SOIL with GRAVEL SANDY ORGANIC SOIL SANDY ORGANIC SOIL with GRAVEL GRAVELLY ORGANIC SOIL GRAVELLY ORGANIC SOIL with SAND
	COBBLES COBBLES and BOULDERS BOULDERS		

FIELD AND LABORATORY TESTS

C	Consolidation (ASTM D 2435-04)
CL	Collapse Potential (ASTM D 5333-03)
CP	Compaction Curve (CTM 216 - 06)
CR	Corrosion, Sulfates, Chlorides (CTM 643 - 99; CTM 417 - 06; CTM 422 - 06)
CU	Consolidated Undrained Triaxial (ASTM D 4767-02)
DS	Direct Shear (ASTM D 3080-04)
EI	Expansion Index (ASTM D 4829-03)
M	Moisture Content (ASTM D 2216-05)
OC	Organic Content (ASTM D 2974-07)
P	Permeability (CTM 220 - 05)
PA	Particle Size Analysis (ASTM D 422-63 [2002])
PI	Liquid Limit, Plastic Limit, Plasticity Index (AASHTO T 89-02, AASHTO T 90-00)
PL	Point Load Index (ASTM D 5731-05)
PM	Pressure Meter
PP	Pocket Penetrometer
R	R-Value (CTM 301 - 00)
SE	Sand Equivalent (CTM 217 - 99)
SG	Specific Gravity (AASHTO T 100-06)
SL	Shrinkage Limit (ASTM D 427-04)
SW	Swell Potential (ASTM D 4546-03)
TV	Pocket Torvane
UC	Unconfined Compression - Soil (ASTM D 2166-06) Unconfined Compression - Rock (ASTM D 2938-95)
UU	Unconsolidated Undrained Triaxial (ASTM D 2850-03)
UW	Unit Weight (ASTM D 4767-04)
WA	Minus #200 (ASTM D 1140)

SAMPLER GRAPHIC SYMBOLS

- Standard Penetration Test (SPT)
- Standard California Sampler
- Modified California Sampler
- Shelby Tube
- Piston Sampler
- NX Rock Core
- HQ Rock Core
- Bulk Sample
- Other (see remarks)

DRILLING METHOD SYMBOLS

- Auger Drilling
- Rotary Drilling
- Dynamic Cone or Hand Driven
- Diamond Core

WATER LEVEL SYMBOLS

- First Water Level Reading (during drilling)
- Static Water Level Reading (short-term)
- Static Water Level Reading (long-term)

Figure A-1

URS

Project: UHS Temecula Percolation Testing
Project Location: Temecula, CA
Project Number: 25338344

Key to Log of Boring

Sheet A-2

CONSISTENCY OF COHESIVE SOILS				
Descriptor	**Unconfined Compressive Strength (tsf)**	**Pocket Penetrometer (tsf)**	**Torvane (tsf)**	**Field Approximation**
Very Soft	< 0.25	< 0.25	< 0.12	Easily penetrated several inches by fist
Soft	0.25 - 0.50	0.25 - 0.50	0.12 - 0.25	Easily penetrated several inches by thumb
Medium Stiff	0.50 - 1.0	0.50 - 1.0	0.25 - 0.50	Can be penetrated several inches by thumb with moderate effort
Stiff	1.0 - 2.0	1.0 - 2.0	0.50 - 1.0	Readily indented by thumb but penetrated only with great effort
Very Stiff	2.0 - 4.0	2.0 - 4.0	1.0 - 2.0	Readily indented by thumbnail
Hard	> 4.0	> 4.0	> 2.0	Indented by thumbnail with difficulty

APPARENT DENSITY OF COHESIONLESS SOILS	
Descriptor	**SPT N_{60} - Value (blows / foot)**
Very Loose	0 - 4
Loose	5 - 10
Medium Dense	11 - 30
Dense	31 - 50
Very Dense	> 50

MOISTURE	
Descriptor	**Criteria**
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below water table

PERCENT OR PROPORTION OF SOILS	
Descriptor	**Criteria**
Trace	Particles are present but estimated to be less than 5%
Few	5 to 10%
Little	15 to 25%
Some	30 to 45%
Mostly	50 to 100%

SOIL PARTICLE SIZE		
Descriptor		**Size**
Boulder		> 12 inches
Cobble		3 to 12 inches
Gravel	Coarse	3/4 inch to 3 inches
	Fine	No. 4 Sieve to 3/4 inch
Sand	Coarse	No. 10 Sieve to No. 4 Sieve
	Medium	No. 40 Sieve to No. 10 Sieve
	Fine	No. 200 Sieve to No. 40 Sieve
Silt and Clay		Passing No. 200 Sieve

PLASTICITY OF FINE-GRAINED SOILS	
Descriptor	**Criteria**
Nonplastic	A 1/8-inch thread cannot be rolled at any water content.
Low	The thread can barely be rolled, and the lump cannot be formed when drier than the plastic limit.
Medium	The thread is easy to roll, and not much time is required to reach the plastic limit; it cannot be rerolled after reaching the plastic limit. The lump crumbles when drier than the plastic limit.
High	It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump can be formed without crumbling when drier than the plastic limit.

CEMENTATION	
Descriptor	**Criteria**
Weak	Crumbles or breaks with handling or little finger pressure.
Moderate	Crumbles or breaks with considerable finger pressure.
Strong	Will not crumble or break with finger pressure.

NOTE: This legend sheet provides descriptors and associated criteria for required soil description components only. Refer to Caltrans Soil and Rock Logging, Classification, and Presentation Manual (July 2007), Section 2, for tables of additional soil description components and discussion of soil description and identification.

Figure A-2

URS

Project: UHS Temecula Percolation Testing
Project Location: Temecula, CA
Project Number: 25338344

Log of Boring B-1

Sheet 1 of 1

Date(s) Drilled	**02/11/10**	Logged By	**P. Yerra**	Checked By	**M.Smith**
Drilling Method	**Hollow Stem Auger**	Drill Bit Size/Type	**8-inch HSA drill bit**	Total Depth of Borehole	**16.5 feet**
Drill Rig Type	**CME 75**	Drilling Contractor	**2R Drilling**	Surface Elevation	**N/A**
Groundwater Level(s)	**Not Encountered**	Sampling Method(s)	**SPT, California, Bulk**	Hammer Data	**Automatic Hammer; 140 lbs / 30-inch drop**
Borehole Backfill	**Installed 3" Dia perforated PVC pipe and annular space backfilled with 3/4" Gravel**	Location			

Elevation, feet	Depth, feet	SAMPLES Type	SAMPLES Number	Sampling Resistance, blows/foot	Graphic Log	MATERIAL DESCRIPTION	Drilling Method	Water Content, %	Dry Unit Weight, pcf	REMARKS AND OTHER TESTS
	0					Silty SAND (SM); Loose; dark grayish brown; moist; low plastic				Grass and dirt surface
			1					15		
	5		2	10				15		SA (30)
	10		3	7				8		WA (15)
	15		4	31		Poorly Graded SAND with SILT (SP-SM); Medium dense; yellowish brown; moist; iron oxide stains		4		
						Bottom of borehole at 16.5 feet bgs				Filled pipe with water to pre-soak for infiltration test.
	20									
	25									
	30									

Report: GEO_10_SNA_CT; File: B1 - 5.GPJ; 3/1/2010 B-1

URS

Figure A-3

Project: UHS Temecula Percolation Testing
Project Location: Temecula, CA
Project Number: 25338344

Log of Boring B-2

Sheet 1 of 1

Date(s) Drilled	**02/11/10**	Logged By	**P. Yerra**	Checked By	**M.Smith**
Drilling Method	**Hollow Stem Auger**	Drill Bit Size/Type	**8-inch HSA drill bit**	Total Depth of Borehole	**16.5 feet**
Drill Rig Type	**CME 75**	Drilling Contractor	**2R Drilling**	Surface Elevation	**N/A**
Groundwater Level(s)	**Not Encountered**	Sampling Method(s)	**SPT, California, Bulk**	Hammer Data	**Automatic Hammer; 140 lbs / 30-inch drop**
Borehole Backfill	**Installed 3" Dia perforated PVC pipe and annular space backfilled with 3/4" Gravel**	Location			

Elevation, feet	Depth, feet	SAMPLES Type	SAMPLES Number	Sampling Resistance, blows/foot	Graphic Log	MATERIAL DESCRIPTION	Drilling Method	Water Content, %	Dry Unit Weight, pcf	REMARKS AND OTHER TESTS
	0					Silty SAND (SM); dark grayish brown; moist; trace of roots and gravel				Grass and dirt surface
			1					17		
	5									
			2	27		Clayey SAND(SC); Medium dense; light olive brown; moist; trace gravel		11		SA (26)
	10									
			3	8		...becomes loose		11		
	15									
			4	25		...becomes medium dense, trace of organics		13		WA (32)
						Bottom of borehole at 16.5 feet bgs				Filled pipe with water to pre-soak for infiltration test.
	20									
	25									
	30									

Report: GEO_10_SNA_CT; File: B1 - 5.GPJ; 3/1/2010 B-2

URS

Figure A-4

Project: UHS Temecula Percolation Testing
Project Location: Temecula, CA
Project Number: 25338344

Log of Boring B-3

Sheet 1 of 1

Date(s) Drilled	**02/11/10**	Logged By	**P. Yerra**	Checked By	**M.Smith**
Drilling Method	**Hollow Stem Auger**	Drill Bit Size/Type	**8-inch HSA drill bit**	Total Depth of Borehole	**16.5 feet**
Drill Rig Type	**CME 75**	Drilling Contractor	**2R Drilling**	Surface Elevation	**N/A**
Groundwater Level(s)	**Not Encountered**	Sampling Method(s)	**SPT, California, Bulk**	Hammer Data	**Automatic Hammer; 140 lbs / 30-inch drop**
Borehole Backfill	**Installed 3" Dia perforated PVC pipe and annular space backfilled with 3/4" Gravel**	Location			

Elevation, feet	Depth, feet	SAMPLES Type	SAMPLES Number	Sampling Resistance, blows/foot	Graphic Log	MATERIAL DESCRIPTION	Drilling Method	Water Content, %	Dry Unit Weight, pcf	REMARKS AND OTHER TESTS
	0					Clayey SAND (SC); dark grayish brown; moist; low to medium plasticity, with some gravel				Grass and dirt surface
			1					21		
	5		2	20				5		
						Silty SAND (SM); Medium dense; olive brown; dry to moist;				
	10		3	36				6		WA (38)
						Clayey SAND (SC); Medium dense; olive gray; moist; trace of gravel				
	15		4	17				13		SA (35)
						Bottom of borehole at 16.5 feet bgs				Filled pipe with water to pre-soak for infiltration test.
	20									
	25									
	30									

Report: GEO_10_SNA_CT; File: B1 - 5.GPJ; 3/1/2010 B-3

URS

Figure A-5

Project: UHS Temecula Percolation Testing
Project Location: Temecula, CA
Project Number: 25338344

Log of Boring B-4

Sheet 1 of 1

Date(s) Drilled	**02/11/10**	Logged By	**P. Yerra**	Checked By	**M.Smith**
Drilling Method	**Hollow Stem Auger**	Drill Bit Size/Type	**8-inch HSA drill bit**	Total Depth of Borehole	**16.5 feet**
Drill Rig Type	**CME 75**	Drilling Contractor	**2R Drilling**	Surface Elevation	**N/A**
Groundwater Level(s)	**Not Encountered**	Sampling Method(s)	**SPT, California, Bulk**	Hammer Data	**Automatic Hammer; 140 lbs / 30-inch drop**
Borehole Backfill	**Installed 3" Dia perforated PVC pipe and annular space backfilled with 3/4" Gravel**	Location			

Elevation, feet	Depth, feet	SAMPLES Type	SAMPLES Number	SAMPLES Sampling Resistance, blows/foot	Graphic Log	MATERIAL DESCRIPTION	Drilling Method	Water Content, %	Dry Unit Weight, pcf	REMARKS AND OTHER TESTS
	0					Silty SAND (SM); Medium dense, dark olive brown; moist; low to medium plasticity, with some gravel				Grass and dirt surface
			1					12		
	5		2	39		...becomes light olive brown; with trace of mica		3		SA (22)
						Clayey SAND (SC); Medium dense; olive gray; moist; low to medium plasticity				
	10		3	13				7		WA (35)
						Sandy Lean CLAY (CL); Stiff, olive brown, moist, low to medium plastic				
	15		4	13				21		
						Bottom of borehole at 16.5 feet bgs				Filled pipe with water to pre-soak for infiltration test.
	20									
	25									
	30									

Report: GEO_10_SNA_CT; File: B1 - 5.GPJ; 3/1/2010 B-4

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Figure A-6

Project: UHS Temecula Percolation Testing
Project Location: Temecula, CA
Project Number: 25338344

Log of Boring B-5

Sheet 1 of 1

Date(s) Drilled	**02/11/10**	Logged By	**P. Yerra**	Checked By	**M.Smith**
Drilling Method	**Hollow Stem Auger**	Drill Bit Size/Type	**8-inch HSA drill bit**	Total Depth of Borehole	**16.5 feet**
Drill Rig Type	**CME 75**	Drilling Contractor	**2R Drilling**	Surface Elevation	**N/A**
Groundwater Level(s)	**Not Encountered**	Sampling Method(s)	**SPT, California, Bulk**	Hammer Data	**Automatic Hammer; 140 lbs / 30-inch drop**
Borehole Backfill	**Installed 3" Dia perforated PVC pipe and annular space backfilled with 3/4" Gravel**	Location			

Elevation, feet	Depth, feet	SAMPLES Type	SAMPLES Number	Sampling Resistance, blows/foot	Graphic Log	MATERIAL DESCRIPTION	Drilling Method	Water Content, %	Dry Unit Weight, pcf	REMARKS AND OTHER TESTS
	0					Clayey SAND (SC); Loose to medium dense; dark grayish brown; moist; low to medium plasticity				Grass and dirt surface
			1					13		
	5		2	14		...becomes olive brown, trace of mica		4		
	10		3	37		Poorly Graded SAND (SP); Medium dense; dark gray; moist; trace of gravel		3		SA (3)
	15		4	19				3		WA (5)
						Bottom of borehole at 16.5 feet bgs				Filled pipe with water to pre-soak for infiltration test.
	20									
	25									
	30									

Report: GEO_10_SNA_CT; File: B1 - 5.GPJ; 3/1/2010 B-5

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Figure A-7

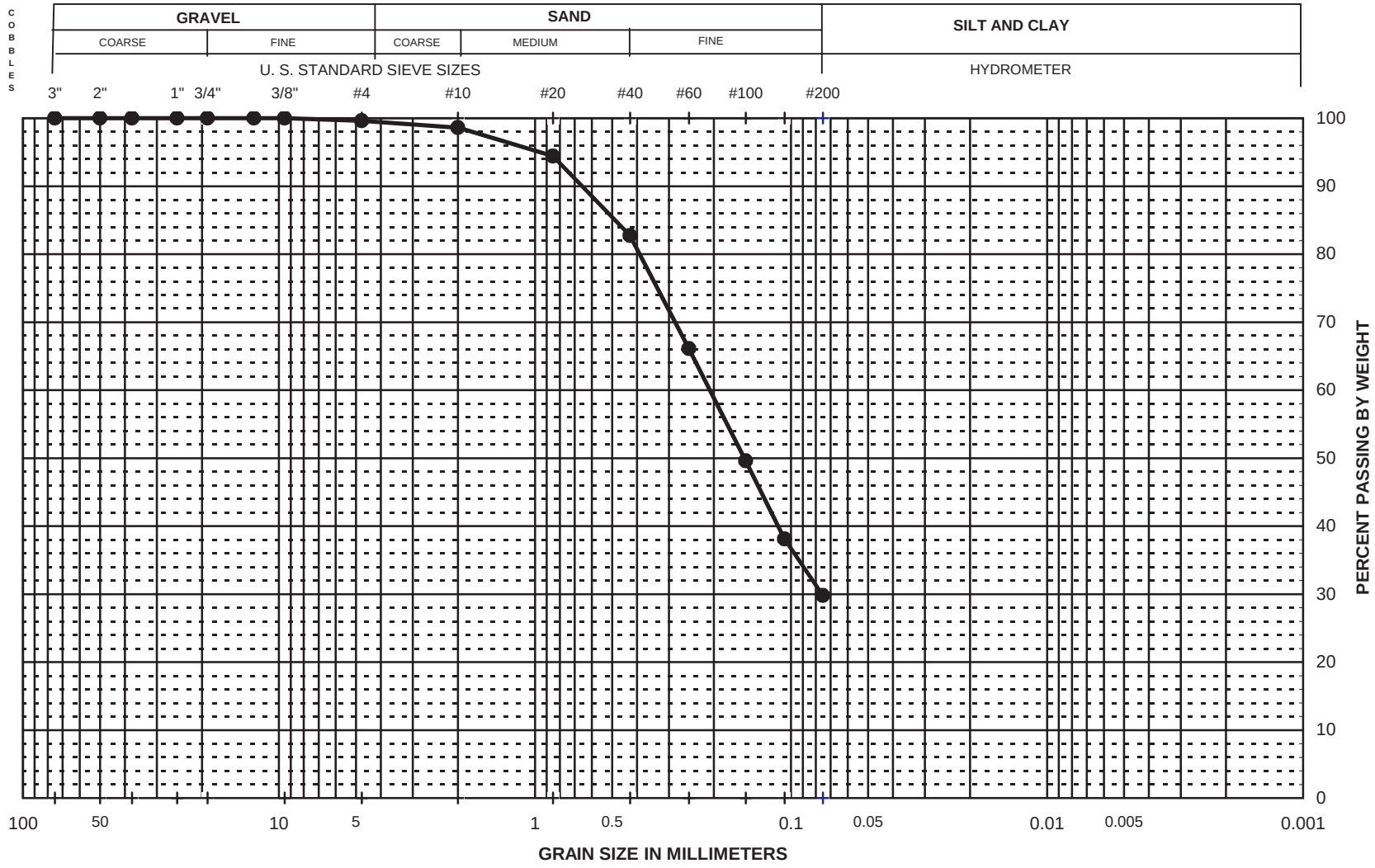
ATTACHMENT B
LABORATORY TEST RESULTS

Santa Ana Geotechnical Laboratory Testing Summary

Project Name: UHS Temecula Percolation Testing
Project Number: 25338344
Project Engineer: MGS

Exploration Number	Sample/ Specimen Number	Depth (ft)	USCS Symbol	Water Content (%)	Gravel (%)	Sand (%)	Fines (%)
B-1		0 ~ 5	SM	14.5			
B-1	1	5.0	SM	15.2	0.4	69.8	29.8
B-1	2	10.0	SM	8.0			15.2
B-1	3	15.0	SP-SM	3.8			
B-2		0 ~ 5	SM	17.1			
B-2	1	5.0	SC	10.5	1.2	73.1	25.7
B-2	2	10.0	SC	11.2			
B-2	3	15.0	SC	12.6			32.3
B-3		0 ~ 5	SC	21.1			
B-3	1	5.0	SC/CL	5.0			
B-3	2	10.0	SM	6.1			38.4
B-3	3	15.0	SC	13.0	0.2	65.3	34.5
B-4		0 ~ 5	SM	12.2			
B-4	1	5.0	SM	3.4	0.1	77.7	22.2
B-4	2	10.0	SC	6.7			35.1
B-4	3	15.0	CL	20.5			
B-5		0 ~ 5	SC	13.3			
B-5	1	5.0	SC	3.9			
B-5	2	10.0	SP	3.2	0.2	96.7	3.1
B-5	3	15.0	SP	2.9			4.6

UNIFIED SOIL CLASSIFICATION



Sieve No.	Dia. mm	% Finer
3"	75.0	100.0
2"	50.0	100.0
1.5"	37.5	100.0
1"	25.0	100.0
3/4"	19.00	100.0
1/2"	12.50	100.0
3/8"	9.50	100.0
#4	4.75	99.6
#10	2.00	98.6
#20	0.850	94.4
#40	0.425	82.7
#60	0.250	66.1
#100	0.150	49.6
#140	0.106	38.1
#200	0.075	29.8
Hydrometer Analysis		

% Cobbles	
% Gravel	0.4
% Sand	69.8
% Fines	29.8
D_{60}	
D_{30}	
D_{10}	
C_u	
C_c	

Exploration	Sample No.	Depth (ft)	SYMBOL	Wn (%)	LL	PI	% 5 μm	Description and Classification
B-1	1	5.0	●	15.2				**Very dark gray silty Sand (SM)**

PROJECT NAME: **UHS Temecula Percolation Testing**

PROJECT NUMBER: **25338344**

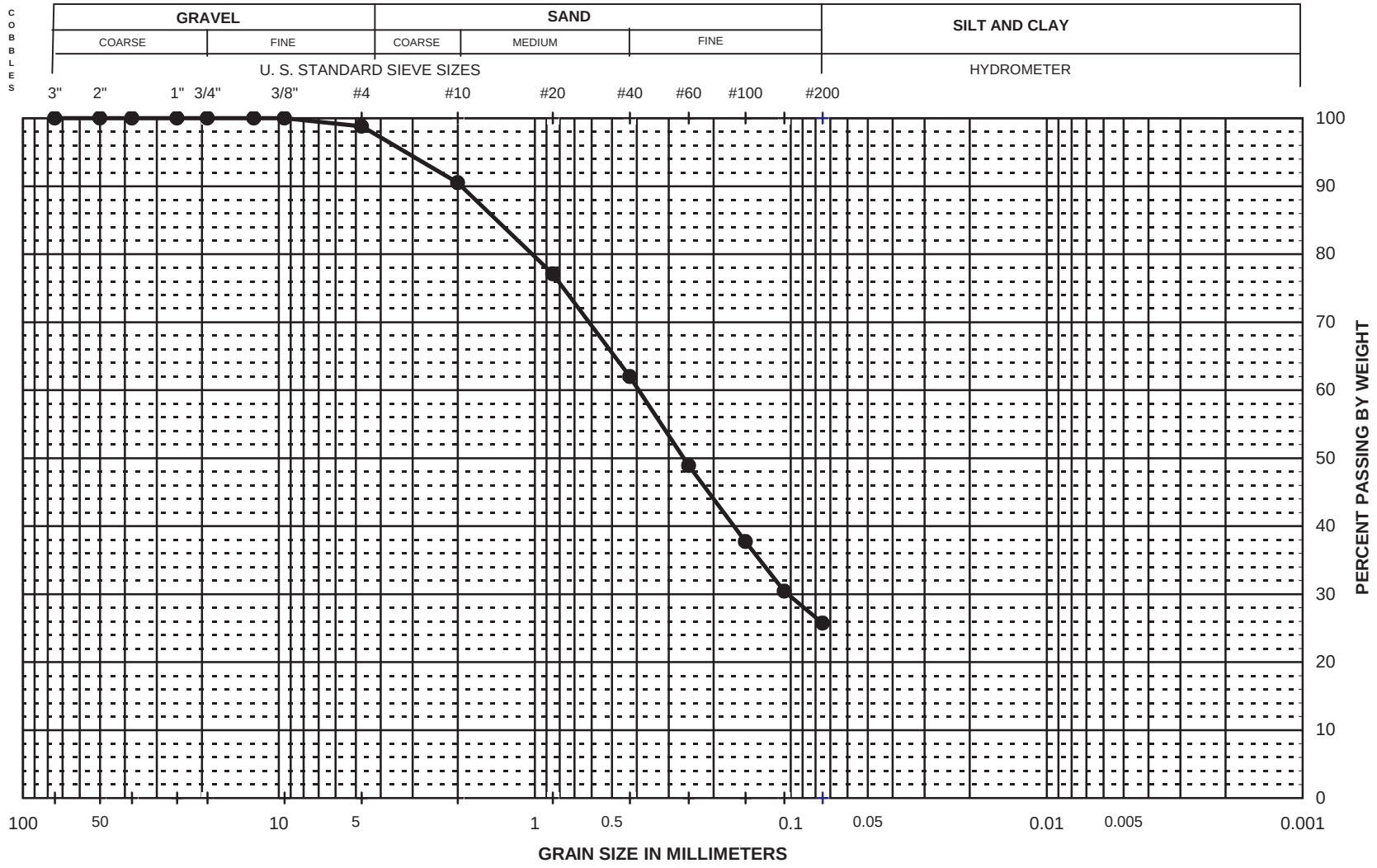
PARTICLE-SIZE DISTRIBUTION CURVES

Figure:

@BCL@6411E56D

URS

UNIFIED SOIL CLASSIFICATION



Sieve No.	Dia. mm	% Finer
3"	75.0	100.0
2"	50.0	100.0
1.5"	37.5	100.0
1"	25.0	100.0
3/4"	19.00	100.0
1/2"	12.50	100.0
3/8"	9.50	100.0
#4	4.75	98.8
#10	2.00	90.5
#20	0.850	77.1
#40	0.425	62.0
#60	0.250	48.9
#100	0.150	37.7
#140	0.106	30.4
#200	0.075	25.7
Hydrometer Analysis		

% Cobbles	
% Gravel	1.2
% Sand	73.1
% Fines	25.7
D_{60}	
D_{30}	
D_{10}	
C_u	
C_c	

Exploration	Sample No.	Depth (ft)	SYMBOL	Wn (%)	LL	PI	% 5 μm	Description and Classification
B-2	1	5.0	●	10.5				**Light olive brown clayey Sand (SC)**

PROJECT NAME: **UHS Temecula Percolation Testing**

PROJECT NUMBER: **25338344**

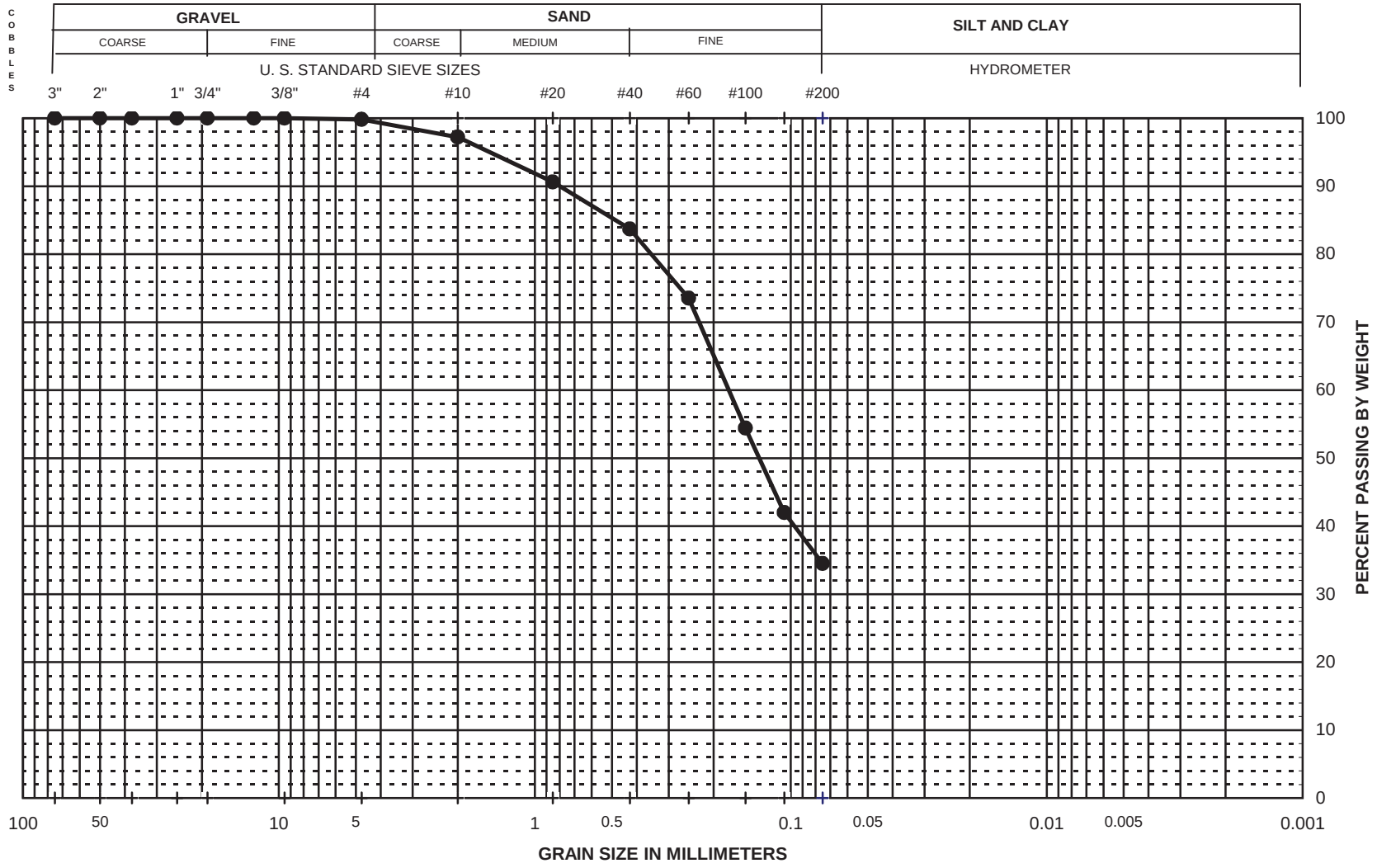
PARTICLE-SIZE DISTRIBUTION CURVES

Figure:

@BCL@6411DF79

URS

UNIFIED SOIL CLASSIFICATION



Sieve No.	Dia. mm	% Finer
3"	75.0	100.0
2"	50.0	100.0
1.5"	37.5	100.0
1"	25.0	100.0
3/4"	19.00	100.0
1/2"	12.50	100.0
3/8"	9.50	100.0
#4	4.75	99.8
#10	2.00	97.2
#20	0.850	90.6
#40	0.425	83.7
#60	0.250	73.5
#100	0.150	54.4
#140	0.106	42.0
#200	0.075	34.5
Hydrometer Analysis		

% Cobbles	
% Gravel	0.2
% Sand	65.3
% Fines	34.5
D_{60}	
D_{30}	
D_{10}	
C_u	
C_c	

Exploration	Sample No.	Depth (ft)	SYMBOL	Wn (%)	LL	PI	% 5 μm	Description and Classification
B-3	3	15.0	●	13.0				**Olive gray clayey Sand (SC)**

PROJECT NAME: **UHS Temecula Percolation Testing**

PROJECT NUMBER: **25338344**

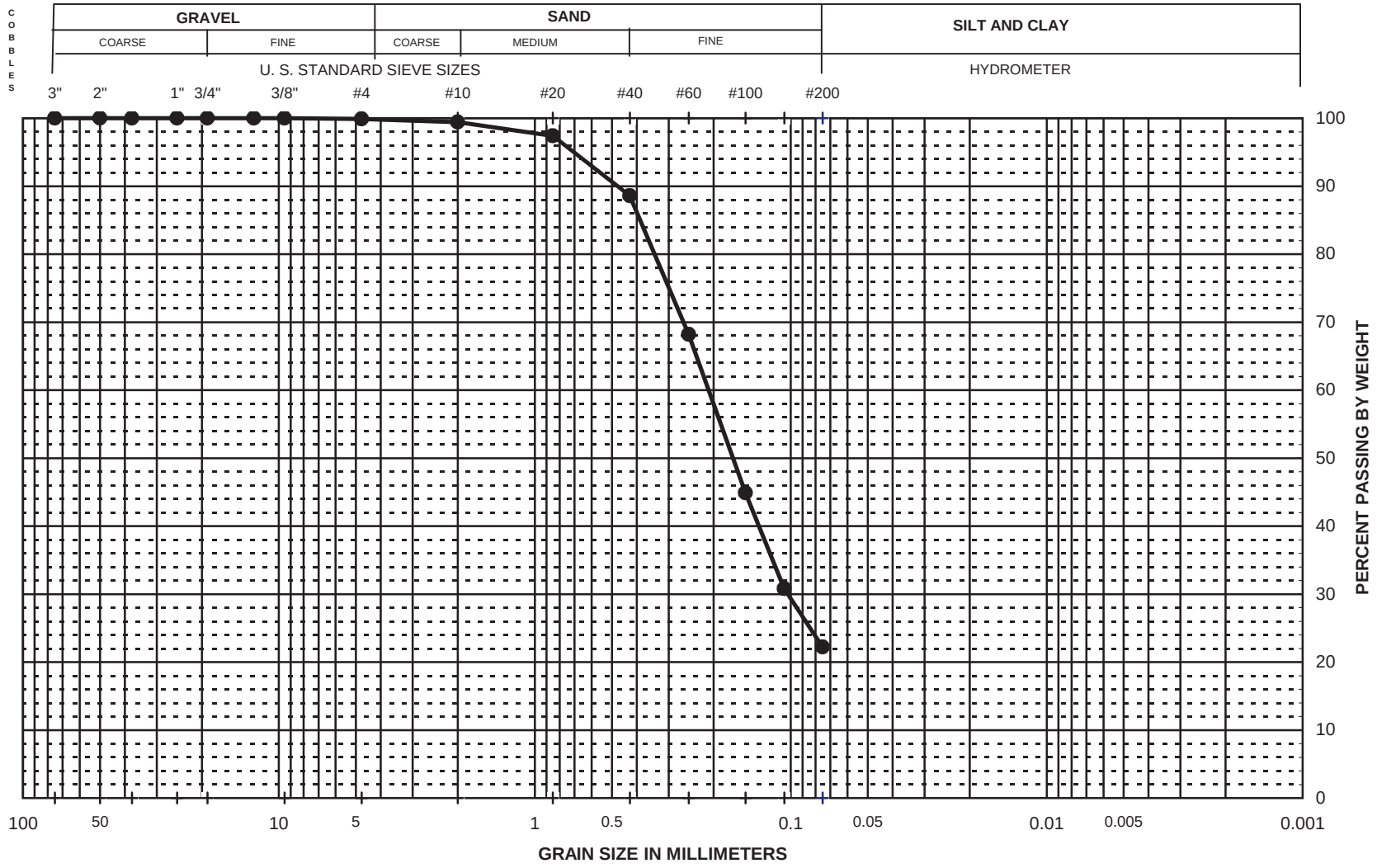
PARTICLE-SIZE DISTRIBUTION CURVES

Figure:

@BCL@6411E285

URS

UNIFIED SOIL CLASSIFICATION



Sieve No.	Dia. mm	% Finer
3"	75.0	100.0
2"	50.0	100.0
1.5"	37.5	100.0
1"	25.0	100.0
3/4"	19.00	100.0
1/2"	12.50	100.0
3/8"	9.50	100.0
#4	4.75	99.9
#10	2.00	99.4
#20	0.850	97.4
#40	0.425	88.6
#60	0.250	68.2
#100	0.150	44.9
#140	0.106	30.8
#200	0.075	22.2
Hydrometer Analysis		

% Cobbles	
% Gravel	0.1
% Sand	77.7
% Fines	22.2
D_{60}	
D_{30}	
D_{10}	
C_u	
C_c	

Exploration	Sample No.	Depth (ft)	SYMBOL	Wn (%)	LL	PI	% 5 μm	Description and Classification
B-4	1	5.0	●	3.4				**Olive silty Sand (SM)**

PROJECT NAME: **UHS Temecula Percolation Testing**

PROJECT NUMBER: **25338344**

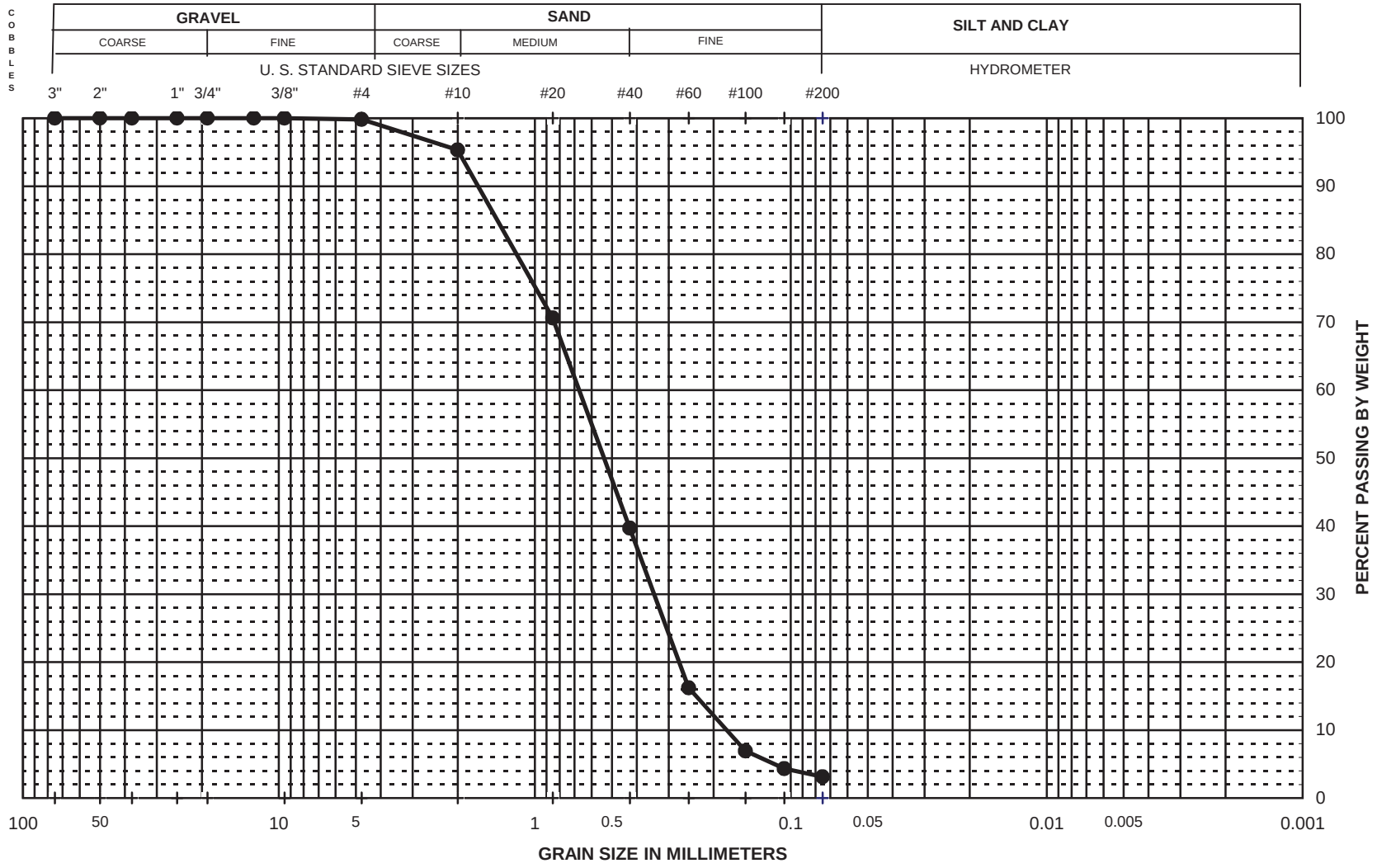
PARTICLE-SIZE DISTRIBUTION CURVES

Figure:

@BCL@6411D692

URS

UNIFIED SOIL CLASSIFICATION



Sieve No.	Dia. mm	% Finer
3"	75.0	100.0
2"	50.0	100.0
1.5"	37.5	100.0
1"	25.0	100.0
3/4"	19.00	100.0
1/2"	12.50	100.0
3/8"	9.50	100.0
#4	4.75	99.8
#10	2.00	95.3
#20	0.850	70.6
#40	0.425	39.7
#60	0.250	16.2
#100	0.150	6.9
#140	0.106	4.3
#200	0.075	3.1
Hydrometer Analysis		

% Cobbles	
% Gravel	0.2
% Sand	96.7
% Fines	3.1
D_{60}	0.670
D_{30}	0.341
D_{10}	0.178
C_u	3.8
C_c	1.0

Exploration	Sample No.	Depth (ft)	SYMBOL	Wn (%)	LL	PI	% 5 μm	Description and Classification
B-5	2	10.0	●	3.2				**Gray poorly graded Sand (SP)**

PROJECT NAME: **UHS Temecula Percolation Testing**

PROJECT NUMBER: **25338344**

PARTICLE-SIZE DISTRIBUTION CURVES

Figure:

@BCL@6411049F

URS

ATTACHMENT C
INFILTRATION TEST DATA AND CALCULATIONS

Soil Percolation Testing

Project: UHS Temecula Percolation Testing

Project Location: Temecula, CA

Job Number: 25338344

Boring Number: URS-B-1 **Date:** 2/18/2010

Db 14 feet

Ti	Tf	^T	Di	Df	Dt	F	Lave =	Q	Perc Rate in/hr
12:40:00	12:50:00	0:10:00	0.30	11.50	14.00	11.20	8.10	49.78	3.32
13:00:00	13:10:00	0:10:00	0.30	10.20	14.00	9.90	8.75	40.73	2.72
13:40:00	13:50:00	0:10:00	0.30	8.30	14.00	8.00	9.70	29.69	1.98
13:51:00	14:01:00	0:10:00	0.30	9.70	14.00	9.40	9.00	37.60	2.51
14:06:00	14:16:00	0:10:00	0.30	9.30	14.00	9.00	9.20	35.22	2.35
14:21:00	14:31:00	0:10:00	0.30	9.20	14.00	8.90	9.25	34.64	2.31
14:36:00	14:46:00	0:10:00	0.30	8.55	14.00	8.25	9.58	31.02	2.07
14:47:00	14:57:00	0:10:00	0.30	9.45	14.00	9.15	9.13	36.10	2.41
15:01:00	15:11:00	0:10:00	0.30	9.30	14.00	9.00	9.20	35.22	2.35
15:16:00	15:26:00	0:10:00	0.30	9.60	14.00	9.30	9.05	36.99	2.47
15:32:00	15:42:00	0:10:00	0.30	9.60	14.00	9.30	9.05	36.99	2.47
15:48:00	15:58:00	0:10:00	0.30	9.00	14.00	8.70	9.35	33.50	2.23
16:00:00	16:10:00	0:10:00	0.30	8.70	14.00	8.40	9.50	31.83	2.12
16:11:00	16:21:00	0:10:00	0.30	9.70	14.00	9.40	9.00	37.60	2.51
16:29:00	16:39:00	0:10:00	0.30	10.20	14.00	9.90	8.75	40.73	2.72
16:50:00	17:00:00	0:10:00	0.30	9.70	14.00	9.40	9.00	37.60	2.51
17:05:00	17:15:00	0:10:00	0.30	10.30	14.00	10.00	8.70	41.38	2.76
17:25:00	17:35:00	0:10:00	0.30	10.10	14.00	9.80	8.80	40.09	2.67
				Average Infiltration Rate (for the last 30 min)				**39.69**	**2.6**

Ti - initial time when filling or refilling is completed; hour: minute

Tf - final, end-time of fall, hour: minute

^T - usually .5 or .166 hour

Db - depth to water bottom, feet (measured at start of test)

Di - depth to water surface at Ti

Df - depth to water surface at Tf

Dt - total depth of hole

L_{ave} = [Dt - ((Di+Df)/2)] feet

Q = [F* D * 9/T]/ L_{ave} gal/sq.ft/day

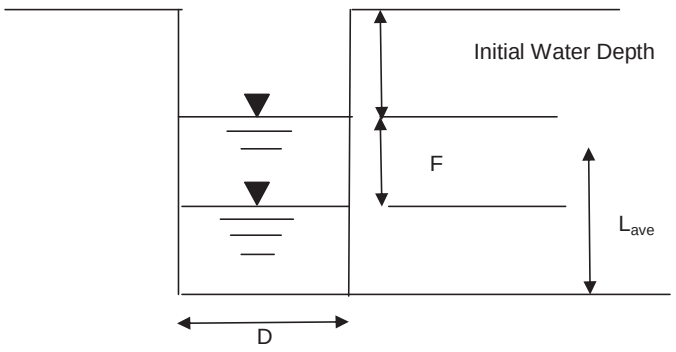
Q = rate in gallons/sq.ft of side wall per day

F= drop during time interval (ft)

D = boring diameter (ft)

T = time interval (hr)

L_{ave} = average wetted depth (ft)



Soil Percolation Testing

Project: UHS Temecula Percolation Testing

Project Location: Temecula, CA

Job Number: 25338344

Boring Number: URS-B-2 **Date:** 2/18/2010

Db 14.4 feet

T_i	T_f	^T	D_i	D_f	D_t	F	Lave =	Q	Perc Rate in/hr
11:26:00	11:36:00	0:10:00	0.40	5.25	14.40	4.85	11.58	15.08	1.01
11:38:00	11:48:00	0:10:00	0.40	2.50	14.40	2.10	12.95	5.84	0.39
11:51:00	12:21:00	0:30:00	0.40	5.30	14.40	4.90	11.55	5.09	0.34
12:37:00	13:07:00	0:30:00	0.40	6.10	14.40	5.70	11.15	6.13	0.41
13:08:00	13:38:00	0:30:00	0.40	6.50	14.40	6.10	10.95	6.68	0.45
13:40:00	14:10:00	0:30:00	0.40	6.30	14.40	5.90	11.05	6.41	0.43
14:12:00	14:42:00	0:30:00	0.40	6.40	14.40	6.00	11.00	6.55	0.44
14:44:00	15:14:00	0:30:00	0.40	6.60	14.40	6.20	10.90	6.83	0.46
15:15:00	15:45:00	0:30:00	0.40	6.70	14.40	6.30	10.85	6.97	0.46
15:47:00	16:17:00	0:30:00	0.40	6.70	14.40	6.30	10.85	6.97	0.46
16:17:00	16:47:00	0:30:00	0.40	6.80	14.40	6.40	10.80	7.11	0.47
16:49:00	16:59:00	0:10:00	0.40	4.40	14.40	4.00	12.00	12.00	0.80
17:00:00	17:10:00	0:10:00	0.40	4.30	14.40	3.90	12.05	11.65	0.78
17:14:00	17:24:00	0:10:00	0.40	4.30	14.40	3.90	12.05	11.65	0.78
17:25:00	17:35:00	0:10:00	0.40	4.15	14.40	3.75	12.13	11.13	0.74
17:36:00	17:46:00	0:10:00	0.40	4.20	14.40	3.80	12.10	11.31	0.75
17:47:00	17:57:00	0:10:00	0.40	4.21	14.40	3.81	12.10	11.34	0.76
				Average Infiltration Rate (for the last 30 min)				**11.32**	**0.8**

Ti - initial time when filling or refilling is completed; hour: minute

Tf - final, end-time of fall, hour: minute

^T - usually .5 or .166 hour

Db - depth to water bottom, feet (measured at start of test)

Di - depth to water surface at Ti

Df - depth to water surface at Tf

Dt - total depth of hole

L_{ave} = [Dt - ((Di+Df)/2)] feet

Q = [F* D * 9/T]/ L_{ave} gal/sq.ft/day

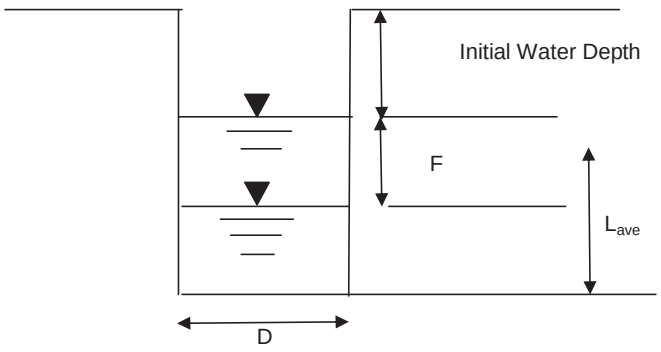
Q = rate in gallons/sq.ft of side wall per day

F= drop during time interval (ft)

D = boring diameter (ft)

T = time interval (hr)

L_{ave} = average wetted depth (ft)



Soil Percolation Testing

Project: UHS Temecula Percolation Testing

Project Location: Temecula, CA

Job Number: 25338344

Boring Number: URS-B-3 **Date:** 2/18/2010

Db 11.4 feet

Ti	Tf	^T	Di	Df	Dt	F	Lave =	Q	Perc Rate in/hr
12:00:00	12:10:00	0:10:00	0.75	2.95	11.40	2.20	9.55	8.29	0.55
12:10:00	12:20:00	0:10:00	2.95	4.58	11.40	1.63	7.64	7.69	0.51
12:20:00	12:30:00	0:10:00	4.58	5.28	11.40	0.70	6.47	3.89	0.26
12:30:00	12:40:00	0:10:00	5.28	5.37	11.55	0.09	6.23	0.52	0.03
12:40:00	12:50:00	0:10:00	5.37	5.46	10.85	0.09	5.44	0.60	0.04
12:50:00	13:00:00	0:10:00	5.34	5.45	10.80	0.11	5.41	0.73	0.05
13:00:00	13:30:00	0:30:00	5.18	5.45	10.55	0.27	5.24	0.62	0.04
13:30:00	14:00:00	0:30:00	5.18	5.70	10.55	0.52	5.11	1.22	0.08
14:09:00	14:39:00	0:30:00	5.10	5.69	10.55	0.59	5.16	1.37	0.09
14:39:00	15:09:00	0:30:00	5.69	6.20	10.40	0.51	4.46	1.37	0.09
15:09:00	15:39:00	0:30:00	6.20	6.69	10.28	0.49	3.84	1.53	0.10
15:39:00	16:09:00	0:30:00	6.69	7.13	10.28	0.44	3.37	1.57	0.10
16:09:00	16:39:00	0:30:00	7.13	7.54	10.20	0.41	2.87	1.72	0.11
16:39:00	16:49:00	0:10:00	7.54	7.62	10.20	0.08	2.62	1.10	0.07
17:00:00	17:10:00	0:10:00	7.62	7.70	10.20	0.08	2.54	1.13	0.08
17:10:00	17:20:00	0:10:00	7.70	7.78	10.20	0.08	2.46	1.17	0.08
17:20:00	17:30:00	0:10:00	7.78	7.85	10.20	0.07	2.39	1.06	0.07
17:33:00	17:43:00	0:10:00	7.38	7.56	10.20	0.18	2.73	2.37	0.16
17:43:00	17:53:00	0:10:00	7.56	7.74	10.20	0.18	2.55	2.54	0.17
							Average Infiltration Rate (for the last 30 min)	**1.53**	**0.1**

Ti - initial time when filling or refilling is completed; hour: minute

Tf - final, end-time of fall, hour: minute

^T - usually .5 or .166 hour

Db - depth to water bottom, feet (measured at start of test)

Di - depth to water surface at Ti

Df - depth to water surface at Tf

Dt - total depth of hole

Q = rate in gallons/sq.ft of side wall per day

F= drop during time interval (ft)

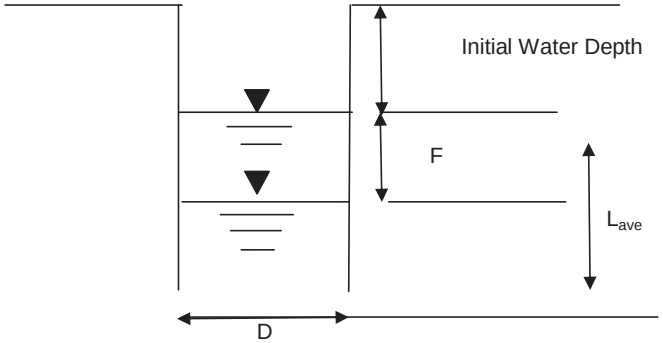
D = boring diameter (ft)

T = time interval (hr)

L_{ave} = average wetted depth (ft)

L_{ave} = [Dt - ((Di+Df)/2)] feet

Q = [F* D * 9/T]/ L_{ave} gal/sq.ft/day



Soil Percolation Testing

Project: UHS Temecula Percolation Testing

Project Location: Temecula, CA

Job Number: 25338344

Boring Number: URS-B-4 **Date:** 2/18/2010

Db 14.4 feet

Ti	Tf	^T	Di	Df	Dt	F	Lave =	Q	Perc Rate in/hr
12:05:00	12:15:00	0:10:00	1.00	5.79	14.40	4.79	11.01	15.67	1.04
12:15:00	12:25:00	0:10:00	5.79	7.05	14.40	1.26	7.98	5.68	0.38
12:27:00	12:37:00	0:10:00	4.55	6.45	14.40	1.90	8.90	7.69	0.51
12:37:00	12:47:00	0:10:00	6.45	7.40	14.40	0.95	7.48	4.58	0.31
12:47:00	12:57:00	0:10:00	7.40	8.27	13.50	0.87	5.67	5.53	0.37
12:57:00	13:07:00	0:10:00	8.27	9.09	13.50	0.82	4.82	6.12	0.41
13:15:00	13:45:00	0:30:00	5.15	7.88	13.35	2.73	6.84	4.79	0.32
13:45:00	14:15:00	0:30:00	7.88	9.70	13.35	1.82	4.56	4.79	0.32
14:15:00	14:45:00	0:30:00	9.70	10.69	13.30	0.99	3.11	3.83	0.26
14:47:00	15:17:00	0:30:00	4.49	8.25	13.20	3.76	6.83	6.61	0.44
15:17:00	15:47:00	0:30:00	8.25	10.01	13.20	1.76	4.07	5.19	0.35
15:51:00	16:01:00	0:10:00	4.20	5.70	13.20	1.50	8.25	6.55	0.44
16:01:00	16:11:00	0:10:00	5.70	6.70	13.20	1.00	7.00	5.14	0.34
16:11:00	16:21:00	0:10:00	6.70	7.67	13.20	0.97	6.02	5.81	0.39
16:21:00	16:31:00	0:10:00	7.67	8.59	13.20	0.92	5.07	6.53	0.44
16:31:00	16:41:00	0:10:00	8.59	9.44	13.20	0.85	4.19	7.31	0.49
16:41:00	16:51:00	0:10:00	9.44	10.25	13.20	0.81	3.36	8.69	0.58
16:57:00	17:07:00	0:10:00	5.00	6.60	13.20	1.60	7.40	7.78	0.52
17:07:00	17:17:00	0:10:00	6.60	7.56	13.20	0.96	6.12	5.65	0.38
17:17:00	17:27:00	0:10:00	7.56	8.48	13.20	0.92	5.18	6.39	0.4
				Average Infiltration Rate (for the last 30 min)				**6.61**	**0.4**

Ti - initial time when filling or refilling is completed; hour: minute

Tf - final, end-time of fall, hour: minute

^T - usually .5 or .166 hour

Db - depth to water bottom, feet (measured at start of test)

Di - depth to water surface at Ti

Df - depth to water surface at Tf

Dt - total depth of hole

L_{ave} = [Dt - ((Di+Df)/2)] feet

Q = [F* D * 9/T]/ L_{ave} gal/sq.ft/day

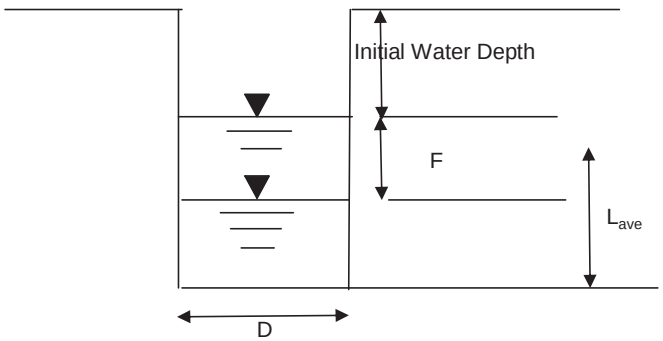
Q = rate in gallons/sq.ft of side wall per day

F= drop during time interval (ft)

D = boring diameter (ft)

T = time interval (hr)

L_{ave} = average wetted depth (ft)



Soil Percolation Testing

Project: UHS Temecula Percolation Testing

Project Location: Temecula, CA

Job Number: 25338344

Boring Number: URS-B-5 **Date:** 2/18/2010

Db 14.7 feet

T_i	T_f	^T	D_i	D_f	D_t	F	Lave =	Q	Perc Rate in/hr
14:16:00	14:26:00	0:10:00	0.50	13.30	14.70	12.80	7.80	59.08	3.94
14:28:00	14:38:00	0:10:00	0.50	13.56	14.70	13.06	7.67	61.30	4.09
14:50:00	15:00:00	0:10:00	0.50	12.50	14.70	12.00	8.20	52.68	3.51
15:08:00	15:18:00	0:10:00	0.50	12.10	14.70	11.60	8.40	49.71	3.31
15:27:00	15:37:00	0:10:00	0.50	12.75	14.70	12.25	8.08	54.61	3.64
15:44:00	15:54:00	0:10:00	0.50	11.30	14.70	10.80	8.80	44.18	2.95
15:55:00	16:05:00	0:10:00	0.50	11.40	14.70	10.90	8.75	44.85	2.99
16:06:00	16:16:00	0:10:00	0.50	11.30	14.70	10.80	8.80	44.18	2.95
16:20:00	16:30:00	0:10:00	0.50	11.60	14.00	11.10	7.95	50.26	3.35
16:45:00	16:55:00	0:10:00	0.50	11.90	14.00	11.40	7.80	52.62	3.51
16:57:00	17:07:00	0:10:00	0.50	11.70	14.00	11.20	7.90	51.04	3.40
17:10:00	17:20:00	0:10:00	0.50	11.45	14.00	10.95	8.03	49.12	3.27
17:35:00	17:45:00	0:10:00	0.50	11.70	14.00	11.20	7.90	51.04	3.40
				Average Infiltration Rate (for the last 30 min)				**50.40**	**3.4**

Ti - initial time when filling or refilling is completed; hour: minute

Tf - final, end-time of fall, hour: minute

^T - usually .5 or .166 hour

Db - depth to water bottom, feet (measured at start of test)

Di - depth to water surface at Ti

Df - depth to water surface at Tf

Dt - total depth of hole

L_{ave} = [Dt - ((Di+Df)/2)] feet

Q = [F* D * 9/T]/ L_{ave} gal/sq.ft/day

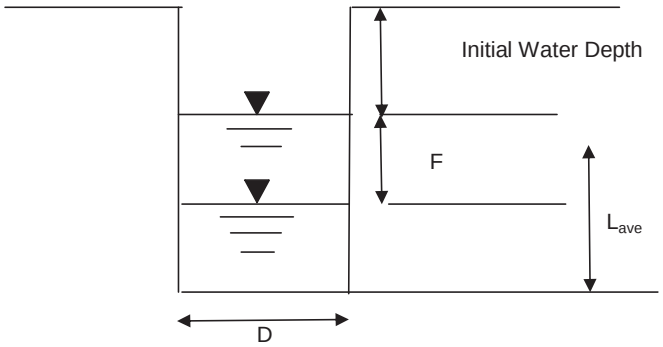
Q = rate in gallons/sq.ft of side wall per day

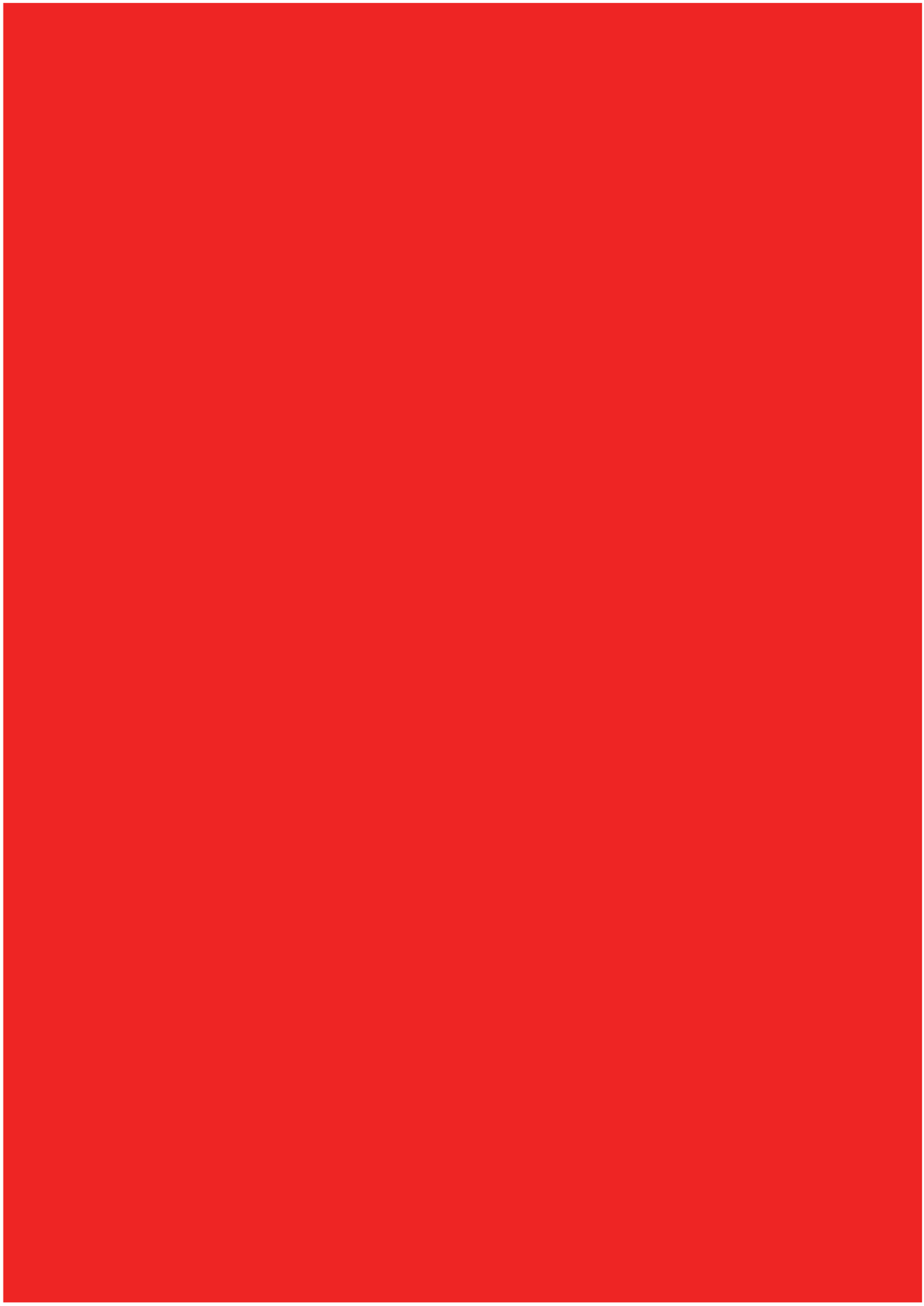
F= drop during time interval (ft)

D = boring diameter (ft)

T = time interval (hr)

L_{ave} = average wetted depth (ft)





GEODESIGN INC

REPORT OF GEOTECHNICAL ENGINEERING SERVICES

Proposed Temecula Hospital

Northwest of Margarita Road and Highway 79

Temecula, California



For

Turner Construction Company

August 16, 2010

GeoDesign Project: TurnerCons-1-02

GEODESIGN INC

August 16, 2010

Turner Construction Company
1900 South State College Boulevard, Suite 200
Anaheim, CA 92806

Attention: Mr. Lee Tsangeos

Report of Geotechnical Engineering Services
Proposed Temecula Hospital
Northwest of Margarita Road and Highway 79
Temecula, California
GeoDesign Project: TurnerCons-1-02

GeoDesign, Inc. is pleased to submit this report presenting the results of our geotechnical investigation for the proposed Temecula Hospital to be constructed northwest of Margarita Road and Highway 79 in Temecula, California.

We appreciate the opportunity to provide our professional services. Please contact us if you have questions regarding this report.

Sincerely,

GeoDesign, Inc.

Christopher J. Zadoorian, G.E.
Principal Engineer

cc: Mr. George Zettel, Turner Construction Company (two copies)
Mr. Tom McCready, DPR Construction (two copies)
Mr. Steve Wilson, HMC Architects (nine copies)
Dr. Saiful Islam, Saiful/Bouquet Consulting Engineers (two copies)
Ms. Margie DeLaurell, URS (two copies)

SFK:CJZ:kt
Attachments
Two copies submitted
Document ID: TurnerCons-1-02-081610-geor.doc
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1.0 INTRODUCTION

1.1 GENERAL

This report presents the results of our geotechnical investigation at the site of the proposed Temecula Hospital complex to be constructed northwest of the intersection of Margarita Road and Highway 79 in Temecula, California. The site location is shown on Figure 1. For your reference, definitions of all acronyms used in this report are presented at the end of this document.

Previous geotechnical investigations were performed at the site by PSI in 2004 and 2006 for the proposed development. The recommendations presented by PSI were conditionally approved by OSHPD in their letter dated August 25, 2009 (OSHPD No HS052415-33).

GeoDesign was retained to perform peer review services regarding the previously approved geotechnical investigations and reports. Based on our review, we concluded that more robust field investigation and engineering analysis could be performed to better define key site conditions, including liquefaction potential. As such, we have performed an independent geotechnical investigation at the site and developed independent conclusions and recommendations that are presented herein.

Pertinent data available from the prior investigations was utilized in our assessment of the overall soil conditions at the site and in developing the conclusions and recommendations presented herein. As such, we assume professional responsibility for our interpretation of the data and our application of that data presented in the prior reports.

Since the time of the prior geotechnical approval, the development concept has changed somewhat in that the building footprints have been reduced in plan area and the height of the proposed bed tower has been reduced. In general, the proposed development includes the construction of two Occupancy Category I hospital buildings and an adjacent Occupancy Category B building.

This report presents geotechnical design recommendations for the proposed Occupancy Category I buildings and the CUR. Recommendations for the Occupancy Category B building will be presented in a separate geotechnical report.

1.2 PROPOSED DEVELOPMENT

The proposed development includes a single0story Occupancy Category I hospital building, a five-story Occupancy Category I hospital tower, a CUR, and a one-story Occupancy Category B building as shown on Figures 2.1 and 2.2.

Ms. Margie DeLaurell of URS Corporation and Mr. Steve Wilson of HMC Architects each provided plans for the proposed hospital development. Based on the information provided, and our discussions with Ms. DeLaurell and Mr. Wilson, the finish floor level for all proposed buildings will be established at approximately Elevation 1057.4 above MSL.

The ground surface level at the site of the proposed Occupancy Category I and CUR buildings ranges from approximately Elevation 1,056 above MSL at the northeast corner of the CUR to Elevation 1,050 above MSL near the south side of the proposed tower building, so that fill on the order of approximately 2 to 7 feet in thickness will be required at the site.

As shown on Figures 2.1 and 2.2, the Occupancy Category I buildings will be approximately 340 feet in length (north to south) by approximately 120 feet in width (east to west). The proposed CUR will be located north of the proposed buildings and the Occupancy Category B building will be located east of the proposed buildings.

Future expansion beyond the current plan may include an additional Occupancy Category I bed tower south of the current planned development as well as an addition to the Occupancy Category B building east of the current planned development.

Additional site improvements include parking lots and access drives.

Dr. Saiful Islam of Saiful/Bouquet Consulting Engineers provided us with structural loading information for the proposed hospital development. Based on the information provide by Dr. Islam, maximum interior column loads for the proposed five-story tower will be on the order of 650 to 750 kips and perimeter tower column loading will be on the order on one-half to two-thirds of the interior column loading. Dr. Islam also indicated that the maximum column loading for the one-story buildings will be on the order of 200 to 250 kips.

2.0 PURPOSE AND SCOPE

The purpose of our investigation was to provide geotechnical design recommendations for the proposed hospital development. Our services included the following main tasks:

- Coordinated and managed the field investigation, including utility checks, site access authorizations, access preparations, and scheduling of subcontractors and GeoDesign field staff.
- Conducted an exploration program that included the drilling of 11 borings using mud-rotary methods to depths ranging between 61.5 and 101.5 feet BGS.
- Obtained closely spaced soil samples from the borings for laboratory testing, and maintained a log of soil conditions encountered in the explorations.
- Performed down-hole SPT hammer energy efficiency calibrations.
- Performed suspension logging to obtain shear wave velocity measurements in one boring.
- Performed geotechnical laboratory testing on selected samples as determined appropriate.
- Performed intensive liquefaction evaluation of the soils at the site.
- Performed a geologic-seismic hazards evaluation of the site in accordance with CGS and OSHPD requirements.
- Developed recommendations for the foundation design for the proposed buildings.
- Developed grading and earthwork recommendations.
- Developed pavement design recommendations.
- Prepared this geotechnical report summarizing our investigation and presenting our conclusions and design recommendations.

3.0 SITE CONDITIONS AND GEOTECHNICAL EXPLORATIONS

3.1 SURFACE CONDITIONS

The site is vacant land located northwest of the intersection of Highway 79 and Margarita Road in Temecula, California. The site is approximately 28 acres and is currently occupied with low-lying grasses and localized stands of trees and brush. An unpaved extension of Pio Pico Road is present in the northern portion of the site, which provides access from De Portola Road.

The site is bound by Highway 79 on the south and De Portola Road and private residential developments on the north. Commercial developments bound the site on the east and west. An open flood control channel is present near the eastern site boundary approximately 450 feet east of the currently proposed Occupancy Category I hospital buildings and 400 feet east of the currently proposed Occupancy Category B building.

The site is located in the Pechanga 7.5-Minute Quadrangle and the ground surface level ranges from approximately Elevation 1,044 to Elevation 1,064 feet above MSL. Topography at the site slopes gently to the south, southeast, and southwest. Site elevations are highest in the northern portion of the site adjacent to De Portola Road and lowest at the southeast corner of the site adjacent to Highway 79.

Within the proposed building footprints, the ground surface level ranges from approximately Elevation 1,056 to Elevation 1,050 above MSL.

3.2 SUBSURFACE CONDITIONS

3.2.1 Current Explorations

We explored the site by drilling 11 borings using mud-rotary drilling equipment to depths ranging from 61.5 to 101.5 feet BGS at the locations shown on Figures 2.1 and 2.2. Borings B-1, B-1A, and B-2 through B-5 were drilled in May 2010. After completion of our initial borings, the proposed building footprints were revised. In July 2010, we drilled borings B-6 through B-10 to provide adequate coverage of the revised and current building configurations.

Our field investigation program included several components that were absent from the earlier investigations. These components consist of the following:

- Closely spaced sampling intervals of 2.5 feet between 5 and 60 feet BGS
- Energy efficiency measurements of the SPT hammer
- Recording of blow counts by the inch between depths of 30 and 75 feet BGS
- Performance of suspension logging to obtain shear wave velocity data for the site

In addition, as an added measure of quality control, the borings were logged by the undersigned licensed engineering geologist and licensed geotechnical engineer.

The purpose of the more intensive field exploration program was to more clearly define the subsurface conditions primarily for use in liquefaction analysis.

We collected bulk and relatively undisturbed samples from the borings and performed SPTs in each boring.

The locations of the borings and the general development scheme are shown on Figures 2.1 and 2.2 and the logs of the explorations are presented in Appendix A.

3.2.2 Prior Explorations

Data was also available from the prior investigations by PSI, which included 11 hollow-stem auger borings and 6 CPTs performed in 2004. In addition, four hollow-stem auger borings and four mud-rotary borings were performed in 2006. The locations of the prior borings and CPTs are shown on Figures 2.1 and 2.2, and the logs of the prior borings and CPTs are presented in Appendix B.

The data available from the prior investigations is useful in providing overall correlations and confirmation of the data collected during our current investigation.

3.2.3 Subsurface Soil Conditions

The native alluvial soils encountered in the borings consist of Holocene age poorly consolidated flood plain deposits (Kennedy, 2000) that are predominantly interbedded silty sand, silt, sand, and sand with gravel. Silty sand was encountered at the ground surface in all of the 11 borings drilled for this investigation. Fill materials were not observed.

The soils encountered in our borings are indicative of the depositional environment and vary considerably from boring to boring. In general, the soils consist of alternating layers of silt and sand, each varying in consistency and composition. Occasional clayey layers are present throughout the depths explored and minor amounts of gravel were typically encountered between depths of approximately 33 and 70 feet BGS. It should be noted, however, that the gravel encountered does not appear to impact (i.e., artificially inflate) the SPT blow counts. This conclusion is based on our inch-by-inch blow count data, which is presented in Appendix A.

The alluvial soils in the upper 20 to 33 feet BGS consist of alternating layers of medium dense to dense, silty sand; medium stiff sand with silt; and silt with minor sand lenses. The soils are loose to medium dense and/or soft to medium stiff silt to depths of approximately 13 to 28 feet BGS. Below this depth, the soils are generally dense to very dense or stiff to hard silt. Localized clayey layers and high plasticity silts are also present in the upper approximately 33 feet BGS.

Below approximately 33 feet BGS, the soils generally consist of fine- to coarse-grained sand and sand with varying amounts of gravel. Intermittent silt and clay layers are also present.

The distribution of subsurface materials is depicted on Figures 3.1 and 3.2. The location of the section lines are shown on Figures 2.1 and 2.2. Figure 4 depicts the geologic materials at the site and the surrounding area. The exposed geologic materials at the site are fairly uniform across the area of the proposed development consisting of primarily silty sand alluvial flood plain deposits of Holocene age. Consequently, a site-specific geologic map was not presented.

3.2.4 Groundwater

3.2.4.1 Current Groundwater Levels

Groundwater beneath the site was encountered in our current borings at depths ranging from approximately 22 to 28 feet BGS, corresponding approximately to Elevation 1,025 to Elevation 1,029 above MSL. Groundwater was encountered in the previous explorations at the site at depths ranging from 23.5 to 39 feet BGS, corresponding to Elevation 1,016 to Elevation 1,031 above MSL.

There are four monitoring wells on site installed as part of the previous investigations by PSI. The reported depth to groundwater measured in these wells ranged from 25 to 28 feet BGS; however, additional data was not available from these monitoring wells.

The depth to groundwater and the corresponding groundwater elevation encountered in our borings and the previous borings by PSI are summarized in Table 1. Groundwater levels were not established in the previous CPTs.

Table 1. Summary of Groundwater Levels

Exploration Number	Date Drilled	Boring Elevation (above MSL)	Total Depth Drilled (feet BGS)	Depth to Groundwater (feet BGS)	Groundwater Elevation (above MSL)
GeoDesign					
1	May 2010	1,054.5	76.5	27	1,027.5
1A	May 2010	1,051.5	61.5	23.5	1,028
2	May 2010	1,051	101.5	22	1,029
3	May 2010	1,049.5	76.5	22	1,027.5
4	May 2010	1,048.5	76.5	23	1,025.5
5	May 2010	1,050	76.5	23	1,027
6	July 2010	1,055.5	76.5	27.5	1,028
7	July 2010	1,054	76.5	28	1,026
8	July 2010	1,051.5	61.5	23.5	1,028
9	July 2010	1,049.6	76.5	23	1,026.6
10	July 2010	1,051	76.5	26	1,025
PSI					
1	2004	1,055	71.5	39	1,016
2	2004	1,051.5	71.5	24	1,027.5
3	2004	1,053	26.5	Not encountered	-
4	2004	1,050.5	26.5	Not encountered	-
5	2004	1,053	26.5	Not encountered	-
6	2004	1,052.5	26.5	Not encountered	-
7	2004	1,050	6.5	Not encountered	-
8	2004	1,050.5	6.5	Not encountered	-
9	2004	1,052.5	6.5	Not encountered	-
10	2004	1,050	6.5	Not encountered	-

Table 1. Summary of Groundwater Levels (continued)

Exploration Number	Date Drilled	Boring Elevation (above MSL)	Total Depth Drilled	Depth to Groundwater (feet)	Groundwater Elevation (above MSL)
11	2004	1,049.5	6.5	Not encountered	-
12	2004	1,056.5	6.5	Not encountered	-
HS-B1	2006	1,055	33	28	1,027
HS-B2	2006	1,056	31.5	25	1,031
HS-B3	2006	1,056	33	28	1,028
HS-B4	2006	1,054.5	31.5	28	1,026.5
MR-B1	2006	1,051	70.3	24	1,027
MR-B2	2006	1,053.5	71	23.5	1,030
MR-B3	2006	1,056	51.5	31	1,025
MR-B4	2006	1,055	70.5	39	1,016

3.2.4.2 Historic Groundwater Levels

The site is located in an alluviated valley that is underlain by young (Holocene age) flood plain deposits. Temecula Creek flows west-southwest, trending roughly parallel to Highway 79, and is located approximately 0.4 mile (0.6 km) south of the site. The Elsinore Fault Zone is located 0.4 mile (0.6 km) west-southwest of the site and acts as a groundwater barrier to southwesterly groundwater flow in the Pauba Valley.

These conditions have resulted in high historic groundwater levels in the site vicinity, including locally artesian conditions. Based on available well records, Well No. 08S/02W-17G01S is located approximately 200 feet east of the site. This well had flowing conditions in 1967 (Department of Water Resources, 1971).

The site is located in the Pechanga 7.5-Minute Quadrangle. The CGS, as part of the seismic hazard mapping program, is currently evaluating seismic hazards, including current and historic groundwater levels, in this quadrangle. The results of the CGS evaluation have not been published at the time of this report.

Based on our discussions with Ms. Cindy Pridmore of CGS in May 2010, it is appropriate to assume that the historic high groundwater level at the site is a depth of 10 feet BGS.

3.3 GEOTECHNICAL LABORATORY TESTING

Geotechnical laboratory testing was performed on selected samples from the exploration, including the following:

- In-place moisture and density
- Maximum dry density
- Atterberg Limits
- Consolidation on undisturbed samples
- Direct shear on undisturbed samples

- Grain Size Analysis
- Hydrometer Analysis

Descriptions of the testing and the test results from our current investigation are presented in Appendix A.

3.3.1 Shear Wave Velocity Measurements

Suspension logging was performed by GeoVision in boring B-2 to develop a shear wave velocity profile for the soils at the site. The results of the testing indicated the soils have an average shear wave velocity of 980 feet per second in the upper 100 feet.

GeoVision's report dated May 27, 2010 is presented in Appendix C and provides a detailed description of the field testing and results.

3.3.2 SPT Hammer Energy Efficient

SPT energy efficiency measurements were performed in boring B-2 by EarthSpectives. The results of the testing are summarized in EarthSpectives' report dated May 21, 2010, which is included in Appendix D.

The drill rig utilized an automatic hammer to advance the samplers. Based on the results of the energy efficiency testing, the automatic hammer generally had an energy efficiency ratio of approximately 80 percent.

4.0 GEOLOGIC CONDITIONS

4.1 GENERAL GEOLOGY

The site is located in the alluviated Pauba Valley in southwestern Riverside County. The Pauba Valley trends northeast-southwest and is truncated on the west by the Elsinore Fault Zone, which forms the boundary between the Pauba Valley on the east and the adjacent southeastern-trending Wolf Valley on the west.

From Corona on the north to the upper Wolf Valley on the south, the Elsinore Fault Zone occupies a trough-like depression (the Elsinore Trough) between the Santa Ana Mountains on the west and the low-lying hills of the Perris Block on the east. These low-lying hills are composed primarily of Quaternary age sedimentary rocks and Mesozoic age igneous rocks and are traversed by many west- to southwest-trending drainages that flow into Murrieta Valley and Temecula Valley (Greenwood and Morton, 1991).

The Elsinore Trough has been an area of known subsidence and ground fissuring since the 1980s. Ground fissures have been documented from Murrieta to the upper Wolf Valley, primarily along pre-existing fault traces, as a result of groundwater withdrawal (Kuperman, 1998).

Topography at the site slopes gently to the south, southeast, and southwest. Site elevations range from approximately Elevation 1,044 to Elevation 1,064 above MSL. The site is underlain by young (Holocene age) flood plain deposits that originated from the higher terrain on the north and from flood events on Temecula Creek located along the southern boundary of Pauba Valley.

Regionally, the site is in the Peninsular Ranges geomorphic province. This province is characterized by northwest-trending geomorphic and structural features such as the nearby, northwest-trending Elsinore Fault Zone, Wolf Valley, and the Santa Ana Mountains west of the site and the San Jacinto Fault Zone and San Jacinto Mountains east of the site.

4.2 FAULTS

4.2.1 General

Faults in California are considered active, potentially active, and inactive based on criteria developed by CGS for the Alquist-Priolo Earthquake Fault Zoning Program (Hart, 1999). A fault is considered active that has had surface displacement within Holocene time (approximately the last 11,000 years). A potentially active fault is a fault that has demonstrated displacement of Quaternary age deposits (last 1.6 million years). Inactive faults have no documented movement in the last 1.6 million years.

The primary purpose of the Alquist-Priolo Earthquake Fault Zoning Program is to identify sites that have a potential for surface rupture due to faults that are in close proximity to the site. In such cases, a building setback zone is established to mitigate the potential for surface fault rupture.

A list of faults in Southern California within a 100-mile (160-km) radius of the site is presented in Table 2. These faults were considered in our site-specific probabilistic seismic hazard analysis discussed in the "Seismic Analysis" section of this report. The location of the site relative to nearly faults is shown on Figures 5 and 6.

Table 2. Regional Faults

Fault Name	Geometry	Source Type*	M_{max}*	Slip Rate* (mm/yr)	Distance from Site (miles/km)	Direction
Elsinore (Temecula Segment)	SS	A	6.8	5.0	0.4/0.6	WSW
San Jacinto (San Jacinto Valley)	SS	A	6.9	12.0	20/32	NNE
Rose Canyon	SS	B	7.2	1.5	30/48	SW
Newport-Inglewood (offshore)	SS	B	7.1	1.5	31/50	SW
San Joaquin Hills	BT	B	6.6	0.5	35/56	W
Earthquake Valley	SS	B	6.5	2.0	3658	SE
Chino-Central Avenue	RO	B	6.7	1.0	37/60	NW
San Andreas (San Bernardino Segment)	SS	A	7.5	24.0	37/60	NE
Coronado Bank	SS	B	7.6	3.0	43/69	SW
Whittier	SS	A	6.8	2.5	44/71	NW
Pinto Mountain	SS	B	7.2	2.5	45/72	NE
Newport-Inglewood Zone	SS	B	7.1	1.0	50/81	W
Cucamonga	N	B	6.9	5.0	52/84	NNW
Puente Hills Blind Thrust	BT	B	7.1	0.7	53/85	NW
Palos Verdes	SS	B	7.3	3.0	54/87	W

Table 2. Regional Faults (continued)

Fault Name	Geometry	Source Type*	M_{max}*	Slip Rate* (mm/yr)	Distance from Site (miles/km)	Direction
Cleghorn	SS	B	6.5	3.0	55/88	N
San Jose	RO	B	6.4	0.5	56/90	W
Eureka Peak	SS	B	6.4	0.6	57/92	NE
Burnt Mountain	SS	B	6.5	0.6	58/93	NE
Sierra Madre	R	B	7.2	2.0	58/93	NW
Clamshell-Sawpit	RO	B	6.5	0.5	60/96	NW
North Frontal Zone (Western)	R	B	7.2	1.0	60/96	N
San Andreas (Mojave)	SS	A	7.4	30.0	60/96	N
Landers	SS	B	7.3	0.6	61/98	NE
San Gabriel	SS	B	7.2	1.0	61/98	NNW
Helendale-South Lockhart	SS	B	7.3	0.6	62/100	NNE
North Frontal Zone (Eastern)	R	B	6.7	0.5	62/100	NNE
Lenwood-Lockhart-Old Woman Spr.	SS	B	7.5	0.6	65/105	NE
Johnson Valley (Northern)	SS	B	6.7	0.6	69/111	NE
Upper Elysian Park	BT	B	6.4	1.3	70/113	NW
South Emerson-Copper Mountain	SS	B	7.0	0.6	71/114	NE
Raymond	RO	B	6.5	1.5	72/116	NW
Superstition Mountain	SS	A	6.6	5.0	74/119	SE
Verdugo	R	B	6.9	0.5	74/119	NW
Calico-Hidalgo	SS	B	7.3	0.6	77/124	NE
Superstition Hills	SS	A	6.6	4.0	78/125	SE
Elmore Ranch	SS	B	6.6	1.0	79/127	SE
Hollywood	RO	B	6.4	1.0	80/129	NW
Pisgah-Bullion Mountain-Mesquite Lake	SS	B	7.3	0.6	80/129	NE
Santa Monica	RO	B	6.6	1.0	86/138	NW
Laguna Salada	SS	A	7.0	3.5	89/143	SE
San Fernando	R	B	6.7	2.0	89/143	NW
Gravel Hills-Harper Lake	SS	7.1	0.6	0.6	97/156	N
Imperial	SS	A	7.0	20.0	98/158	SE
Malibu Coast	RO	B	6.7	0.3	99/159	NW

*CGS, 2003

4.2.2 Elsinore Fault Zone

The closest active fault to the site is the Wildomar Fault of the active Elsinore Fault Zone, located approximately 0.4 mile (0.6 km) to the west-southwest. The Elsinore Fault Zone strikes northwest and extends for a distance of at least 200 km from Corona on the north to the

Mexican border and beyond on the south (Kennedy, 1977). The fault zone separates the stable Perris Block on the east from the Santa Ana Mountains on the west.

The Elsinore Fault Zone consists of a series of parallel to sub-parallel, right-stepping, strike-slip faults that have a west-dipping normal component on the east and a series of east-dipping, steeply inclined normal faults on the west. From Corona to the upper Wolf Valley, the geomorphic expression of the fault zone is characterized by a trough-like depression called the Elsinore Trough. In the vicinity of the site, the Wildomar Fault and the Willard Fault form the east and west boundaries of the trough, respectively.

4.2.3 San Jacinto Fault Zone

The active San Jacinto Fault Zone is located approximately 20 miles (32 km) north-northeast of the site. The San Jacinto Fault Zone is considered the most active fault zone in Southern California based on the number of recorded events originating along the fault zone (Fife, et al., 1976). The fault zone includes several en echelon branches or segments and displays many geomorphic features characteristic of recent activity such as fault line scarps, sag ponds, and groundwater barriers.

Historically, the San Jacinto Fault Zone has triggered a number of small- to moderate-sized earthquakes and at least four large tremors of magnitudes greater than 6.0. The four tremors include the Imperial Valley Earthquake of May 19, 1940 (magnitude 6.7), the Borrego Mountain Earthquake of April 9, 1968 (magnitude 6.6), and the November 23 and 24, 1987 Superstition Hills Earthquakes (magnitudes of 6.2 and 6.6, respectively). The Imperial Valley and the Borrego Mountain Earthquakes occurred on the Imperial Fault and the Coyote Creek Fault, respectively. The Superstition Hills Earthquakes resulted from movement on the Superstition Hills Fault.

4.2.4 Rose Canyon Fault Zone

The offshore segment of the active Rose Canyon Fault Zone is located approximately 30 miles (48 km) southwest of the site. The offshore segment extends northwestward from La Jolla and joins with the southeastern extension of the Newport-Inglewood Fault Zone.

Evidence for Holocene faulting has been identified on strands of this fault zone in Rose Canyon, La Jolla, downtown San Diego, and San Diego Bay (Kennedy and Clarke, 1999). Offset Holocene age soil horizons were encountered in trenches at the onshore locations, indicating that several surface-rupturing earthquakes have occurred in the last 11,000 years along the Rose Canyon Fault Zone. Estimates of displacement and displacement rates are broadly based, long-term averages from pre-Holocene geologic features (Kennedy and others, 1975) or based on a single strand of the complex fault system exposed in a fault trench (Lindvall and Rockwell, 1995). CGS has included the onshore splays of the fault zone within an Alquist-Priolo Earthquake Fault Zone for surface fault rupture hazards.

4.2.5 Newport-Inglewood Fault Zone

The active offshore segment of the Newport-Inglewood Fault Zone is located approximately 31 miles (50km) southwest of the site. Onshore, this fault zone is composed of a series of discontinuous northwest-trending en echelon faults extending from Ballona Gap southeastward to the area offshore of Dana Point. This zone is reflected at the surface by a line of

geomorphically young anticlinal hills and mesas formed by the folding and faulting of a thick sequence of Pleistocene age sediments and Tertiary age sedimentary rocks (Barrows, 1974).

Past movement along the fault zone has been predominantly strike-slip faulting with some reverse faulting along the north segment (north of Dominguez Hills) and some normal faulting along the south segment (south of Dominguez Hills to Newport Beach) (Hauksson, 1987). The 1933 Long Beach Earthquake originated along the Newport-Inglewood Fault Zone.

4.2.6 San Joaquin Hills Thrust

The San Joaquin Hills Thrust is postulated to underlie the San Joaquin Hills in the southern Los Angeles Basin (Grant, et al., 2000 and 2002). This postulated blind thrust fault is believed to be a faulted anticlinal fold, parallel to the Newport-Inglewood Fault Zone but considered a distinctly separate seismic source (Grant, et al., 2002). The recency of movement and Holocene slip rate of this fault are not known. However, the fault is estimated to be capable of an earthquake of magnitude 6.8 to 7.3 (Grant, et al., 2002). This estimation is based primarily on coastal geomorphology and age-dating of marsh deposits that are elevated above the current coastline.

The vertical surface projection of the San Joaquin Hills Thrust is approximately 35 miles (56 km) west of the site at the closest point. This thrust fault is not exposed at the surface and does not present a potential surface fault rupture hazard. However, the San Joaquin Hills Thrust is an active feature that can generate future earthquakes. CGS estimates a slip rate of 0.5 mm/yr and a maximum magnitude of 6.6 for the San Joaquin Hills Thrust.

4.2.7 San Andreas Fault Zone

The San Bernardino segment of the active San Andreas Fault Zone is located approximately 37 miles (60 km) northeast of the site. This fault zone, California's most prominent geological feature, trends generally northwest for approximately 600 miles from Imperial Valley on the south to Point Arena in Humboldt County on the north. In the Southern California area, the fault zone separates the San Gabriel Mountains from the San Bernardino Mountains in Cajon Pass and forms the southern boundary of the San Bernardino Mountains, extending through San Gorgonio Pass and into Coachella and Imperial Valleys (Norris and Webb, 1990).

The fault zone generally consists of a narrow zone of closely spaced, subparallel and anastomosing fault segments that is not more than a few kilometers wide but more typically confined to a zone of less than 1 km wide. Faulting is primarily right-lateral, strike slip and movement along fault segments typically follows previous displacements. CGS (2003) reports maximum magnitudes and slip rates for the various fault segments range from 6.2 to 7.5 and 17 mm/yr to 34 mm/yr, respectively. The San Bernardino Segment, closest to the site, has an estimated slip rate of 24 mm/yr and a maximum magnitude of 7.5.

Historically, several significant earthquakes have originated along the San Andreas Fault Zone. Most notable, because of their resulting loss of life and significant property damage, are the 1906 Magnitude 7.8 San Francisco Earthquake and the 1989 Magnitude 6.9 Loma Prieta Earthquake. The 1857 Magnitude 7.9 Fort Tejon earthquake was the last major earthquake along the San Andreas Fault Zone in Southern California (USGS, 1993).

4.3 GEOLOGIC-SEISMIC HAZARDS

4.3.1 Surface Rupture Due to Nearby Active Faults

Active faults are not known to be located beneath or projecting toward the site. The closest fault to the site capable of surface rupture is the Wildomar Fault of the Elsinore Fault Zone, located approximately 0.4 mile (0.6 km) to the west-southwest. An Alquist-Priolo Earthquake Fault Zone has been established for the Wilomar Fault and is located approximately 0.3 mile (0.5 km) west-southwest of the site at its closest point as shown on Figure 6.

Due to the distance of the earthquake fault zone to the site, the potential for surface fault rupture to adversely affect the site is considered low.

4.3.2 Historic Seismicity

The site is located in Seismic Zone 4 and the seismic hazard for the site and the surrounding Temecula area is considered high based on the location of nearby active faults. Consequently, the site could experience strong ground shaking as a result of an earthquake originating on any of the nearby faults listed in Table 2.

Historic seismicity of the region is summarized in Appendix E, which presents the list of earthquakes of Magnitude $\geq$ 4.5 that occurred within 60 miles (100 km) of the site from 1769 through July 2010. The database was compiled by CGS from 1769 through 1973 and the USGS National Earthquake Information Center Database from 1974 through July 2010. Figure 7 graphically illustrates the location of the site relative to epicenters of California earthquakes of Magnitude $\geq$5 that occurred between 1800 between 1999 (CGS, 2000).

Based on the available data, a partial list of earthquakes that have caused significant damage in the Southern California area within 125 miles (approximately 200 km) of the site is presented in Table 4.

Table 4. Historic Earthquakes

Earthquake Name or Location	Date	Magnitude	Distance (miles/km)	Loss of Life and Property
San Diego/San Juan Capistrano	11/22/1800	6.5	90/56	Damaged adobe walls of missions in San Diego and San Juan Capistrano
Wrightwood	12/08/1812	7.3	48/77	40 dead at San Juan Capistrano
NE San Diego County	02/09/1890	7.0	47/75	Little damage
Laguna Salida, Baja California	02/24/1892	7.3	71/114	Damage to San Diego and Imperial Valley
Hemet and San Jacinto	12/25/1899	6.7	22/36	6 dead; $50,000 property damage
Lake Elsinore	05/15/1910	6.0	22/36	
Near San Jacinto	04/21/1918	6.8	19/31	1 dead; several injured; $200,000 property damage

Table 4. Historic Earthquakes (continued)

Earthquake Name or Location	Date	Magnitude	Distance (miles/km)	Loss of Life and Property
Near Redlands	07/23/1923	6.3	37/59	
Long Beach	03/11/1933	6.4	50/81	115 dead;$40 million property damage
San Jacinto	03/25/1937	6.0	49/79	
Imperial Valley	05/19/1940	6.7	106/171	9 dead; $6 million property damage
Westmoreland	10/21/1942	6.4	73/117	
East of Yermo	04/10/1947	6.5	108/174	
East of Yermo	12/04/1948	6.0	52/83	
Santa Rosa Mts.	03/19/1954	6.4	55/88	
Borrego Mountain	04/09/1968	6.6	60/96	
San Fernando	02/09/1971	6.6	98/157	65 dead; $505 million property damage
Imperial Valley	10/15/1979	6.5	118/190	9 injured; $30 million in property damage
Superstition Hills	11/23/1987	6.2	81/131	$3 million property damage
Superstition Hills	11/24/1987	6.6	80/128	part of above damage
Pinto Mountain	04/23/1992	6.1	56/90	
Landers	06/28/1992	7.3	63/101	1 dead; $91 million property damage
Big Bear	06/28/1992	6.5	52/84	Included with Landers losses
Northridge	01/17/1994	6.7	96/155	57 dead; $40 billion property damage
Hector Mine	10/16/1999	7.1	90/145	Minimal injuries/damage due to remote location

As shown in Appendix E and Table 4, there is a potential for significant ground shaking at the site and the surrounding area. However, the seismic risk at the site is similar to most sites in the Southern California area. Adverse effects of ground shaking at the site can be mitigated by engineering design and construction methodology in conformance with the recommendations presented in this report and with current building codes and engineering practices.

4.3.3 Slope Stability

4.3.3.1 Landslides and Unstable Slopes

Site elevations range from approximately Elevation 1,044 to Elevation 1,064 above MSL, and the site topography slopes gently to the south, southeast, and southwest. Site elevations are highest in the northern portion of the site adjacent to De Portola Road and lowest at the southeast corner of the site adjacent to Highway 79.

The site is not located in a County of Riverside Landslide Management Zone (2003, Figure S-4) that identifies areas prone to slope instability (including landslides, rockfalls, and debris flows).

There are no slopes at the site and the topography consists of gently sloping terrain. There are no known landslides near the site nor is the site in the path of any known or potential landslides. The potential for landslides or slope instability at the site is considered low.

4.3.3.2 Debris Flows

The site is located in the Pauba Valley and is not identified as an area with a potential to be affected by debris flows by the County of Riverside General Plan (2003, Figure S-4) or the City of Temecula General Plan (2005). However, the previous geotechnical report for the site by PSI (2006) indicates the site is within an area considered susceptible to possible debris flows discharging from the canyon north of the site (Laton and others, 2000).

4.3.3.3 Seismic-Induced Slope Instability

The site is in the Pechanga 7.5-Minute Quadrangle. CGS, as part of the seismic mapping hazards program, is currently evaluating the hazards related to liquefaction and seismic slope instability in this quadrangle. As of the date of this report, the results of the CGS mapping have not been published.

The County of Riverside has produced maps that identify areas prone to instability as a result of a seismic event. According to the County of Riverside General Plan (2003, Figure S-4), the site is not within an area susceptible to seismic slope stability. Due to the lack of slopes at the site or adjacent to the site, the potential for slope instability as a result of a seismic event adversely affecting the site and the proposed development is considered low.

The proposed development will include construction new hospital buildings that will be supported on deep foundations. The proposed construction will not result in temporary or permanent slopes except in the proposed CUR loading dock area, north of the proposed hospital occupancy buildings. Construction of the loading dock will result in temporary and permanent slopes up to approximately 5 feet in height.

Based on the materials encountered in boring B-6 in this area, the planned slopes will expose primarily sand with silt or sandy silt. These native soils are massive to crudely stratified and lack well-defined continuous planar features or discontinuities (such as smooth bedding planes or joints), which would act as planes of weakness. These conditions are considered favorable for gross stability of excavations. However, if granular soils are exposed with little or no fines, they could be prone to running or caving when excavated.

4.3.4 Liquefaction, Seismic (Dry) Settlement, and Lateral Spreading

These hazards are addressed in detail in the "Liquefaction Analysis" section of this report.

4.3.5 Tsunamis, Inundation, Seiches, and Flooding

The site is not in a coastal area and not susceptible to tsunami hazards.

According to the City of Temecula General Plan (2005, Figure PS-2) and the County of Riverside General Plan (2003, Figure S-10), the site is within an area that could be inundated as a result of a failure of Vail Lake Dam located east of Temecula. However, this dam, as well as others in California, are continually monitored by various governmental agencies (such as the State of

California Division of Safety of Dams and the U.S. Army Corps of Engineers) to guard against the threat of dam failure. The catastrophic failure of a major dam as a result of a scenario earthquake is regarded as unlikely. Current design and construction practices, and ongoing programs of review, modification, or total reconstruction of existing dams are intended to ensure that all dams are capable of withstanding the MCE for the site. Therefore, the potential for inundation at the site as a result of an earthquake-induced dam failure is considered low.

There are no large bodies of waters (lakes or reservoirs) near the site. The site will not be adversely affected in the event of earthquake-induced seiches (wave oscillations in an enclosed or semi-enclosed body of water).

According to the County of Riverside General Plan (2005, Figure S-9) and the City of Temecula General Plan (2005, Figure PS-2), the site is not within a 100-year or 500-year flood zone. However, FEMA Flood Insurance Map Panel 3305 of 3805 indicates the western portion of the site is not within a designated flood zone and the eastern portion of the site is within a Zone X flood hazard zone (FEMA, 2008). Areas within Zone X have a moderate flood hazard, usually between the limits of 100-year and 500-year floods. The depth of potential flooding could be up to several feet.

4.3.6 Subsidence, Ground Fissuring, and Collapsible Soils

Subsidence and associated ground fissuring has been well documented in Riverside County. Areas subject to subsidence and fissuring are primarily alluviated structural valleys such as the San Jacinto Valley and Elsinore Trough that are bound by active faults that offset unconsolidated Holocene age alluvium. The location of ground fissures are typically controlled by underlying geologic structure and typically coincide with pre-existing fault traces.

In southerly portion of the Elsinore Trough, ground subsidence and associated ground fissuring related to changes in groundwater levels has occurred from Murrieta on the north to the upper Wolf Valley on the south. The documented subsidence and fissuring has been confined to the area between fault traces that define the Elsinore Fault Zone on the east and west.

The County of Riverside has established "subsidence report" zones in areas of known subsidence and fissuring, including areas with a moderate to high potential for this phenomenon to occur. Geotechnical reports for proposed developments within these zones must address the potential for future subsidence and ground fissuring. The site is not within a County of Riverside "subsidence report" zone. The closest "subsidence report" zone to the site is approximately 0.4 mile to the west-southwest, confined to the Elsinore Trough between the Wildomar and Willard faults.

The geologic conditions in the Pauba Valley are not characteristic of areas with a potential for large-scale subsidence and associated ground fissuring. However, as identified in the County of Riverside General Plan (2003, Figure S-7), the unconsolidated Holocene age sediments at the site could be susceptible to subsidence or hydro-collapse as a result of changes in groundwater levels.

Moisture-sensitive soils will consolidate or expand due to changes in moisture. Typically, dry, clean sands and silts are subject to hydro-consolidation. In general, the on-site soils consist of variable mixtures of silt and sand with gravel at depth and intermittent clay layers and lenses. There is not a well-defined continuous zone of loose, clean sand or soft silt that would be subject to hydro-consolidation at the site; therefore, the potential for hydro-consolidation is low at this site.

5.0 LIQUEFACTION ANALYSIS

5.1 GENERAL

Liquefaction generally occurs in saturated, loose to medium dense, granular soils and in saturated, soft to moderately firm silts as a result of strong ground shaking. As the density and/or particle size of the soil increases and as the confinement (overburden pressure) increases, the potential for liquefaction decreases.

Based on the County of Riverside General Plan (2003, Figure S-3) and the City of Temecula General Plan (2005, Figure PS-1), the site is within an area identified as having shallow groundwater and underlain by sediments that have a very high susceptibility for liquefaction.

A primary focus of this investigation was to perform closely spaced field testing (SPTs) and very detailed laboratory testing in order to thoroughly evaluate the liquefaction potential of the soils at the site. The following sections summarize our methodology and present the results or our analysis.

5.2 METHODOLOGY

We utilized the procedure outlined in the NCEER document "Proceedings of the NCEER Workshop of Liquefaction Resistance of Soils" (Youd and Idriss, 1997, updated in 2001).

The data available from the SPT hammer energy efficiency testing was utilized in our analysis along with the plasticity index and moisture content testing performed as part of our laboratory testing program.

To evaluate the liquefaction potential of fine-grained soils, we utilized the procedures summarized and/or suggested by Boulanger and Idriss (2006), which include references to the work by Andrus and Martin (2000); Seed, et al. (2003); and Bray, et al. (2004).

In essence, these procedures evaluate whether soils will behave more like clays or more like sands. Clay-like behavior generally precludes liquefaction while sand-like behavior indicates soils may be subject to liquefaction and should be evaluated using the appropriate procedure.

Our determinations for clay- and sand-like behavior were made based on the plasticity data, moisture content, and grain size distribution data from our laboratory testing.

5.3 GROUNDWATER AND GROUND SURFACE LEVELS

The groundwater level at the time of our field investigation is below the historic high groundwater level in the area. Therefore, in performing SPT blow count correction calculations, the current groundwater level data was used for each boring.

However, in performing our liquefaction analysis, the historic high groundwater level was utilized in relation to the planned finish floor level. Please note that the planned finish floor level is higher than the existing ground surface in all cases, so that the relative historic high groundwater level for each boring will vary somewhat, in relation to the current and proposed ground surface levels.

5.4 SEISMIC INPUT DATA

The primary seismic input data for a liquefaction analysis includes the pre-dominant earthquake magnitude and peak ground acceleration. We performed a ground motion study that is summarized in the "Seismic Analysis" section of this report. In our study, we determined the predominant earthquake magnitude for this site is 6.7; that the PGA for the MCE event is 0.88 g as computed using NGA relationships and 0.69 g as computed using earlier versions of attenuation relationships, as discussed in the "Seismic Analysis" section of this report.

We utilized the PGA value of 0.88 g in our liquefaction analysis.

5.5 LIQUEFACTION ANALYSIS AND RESULTS

We performed detailed liquefaction analysis using data collected from our borings. The results of our analysis are presented in Appendix F. Table 5 presents an overview of the results.

Table 5. Summary of Liquefaction Analysis

Exploration Number	Liquefiable Layers		Total Estimated Settlement (inches)
	Depth (feet BGS)	Elevation (above MSL)	
GeoDesign B-1	20 - 22 50.5 - 54	1,034.5 - 1,032.5 1,004 - 1,000.5	0.4 0.6
GeoDesign B-1A	17 - 23.5	1,034.5 - 1,028	1.1
GeoDesign B-2	16.5 - 21.5 33 - 34	1,034.5 - 1,029.5 1,018 - 1,017	0.5 0.3
GeoDesign B-3	24.5 - 29.5	1,025 - 1,020	0.1
GeoDesign B-4	20.5 - 22.5	1,028 - 1,026	0.1
GeoDesign B-5	20.5 - 22.5 30 - 32.5	1,029.5 - 1,028 1,019.5 - 1,017.5	0.3 0.4
GeoDesign B-6	12.5 - 15.5	1,043 - 1,040	0.1
GeoDesign B-7	-	-	0.0
GeoDesign B-8	24 - 30.5	1,027.5 - 1,021	1.2
GeoDesign B-9	18 - 20.5	1,031.5 - 1,029	0.5
GeoDesign B-10	22.5 - 24 33 - 34.5	1,028.5 - 1,027 1,018.5 - 1,016.5	0.3 0.3

Based on the results of our analysis, it can be seen that the distribution of potentially liquefiable soils at the site is variable and the liquefiable layers are generally discontinuous.

Typically, the liquefiable soils are not present below approximately Elevation 1,025 above MSL, with the following noted exceptions. In borings B-2, B-5, and B-10, liquefiable layers are present slightly deeper, extending to Elevation 1016.5 above MSL; however, in these cases, the thickness of the liquefiable layers is 2 feet or less and the total liquefaction settlement in those layers in each case is less than 0.4 inch.

In boring B-1, which is outside of the proposed building footprint, a deeper layer of potentially liquefiable soils is present extending to Elevation 1,000.5 above MSL; this layer is anomalous and it was not encountered in any of the other explorations. Considering that an approximately 28.5-foot-think layer of non-liquefiable soils is present above this layer, it is unlikely that manifestations of this layer would surface.

The results of our liquefaction analysis are presented in Appendix F.

5.6 LATERAL SPREADING

Lateral spreading may occur when potentially liquefiable soils are present in conjunction with a sloping ground surface and an "open-face" condition whereby the sloping surface daylights or is unsupported. If soils within the slope liquefy, the result may be temporary instability resulting in deformation or translation of the slope. In order for this to occur, the liquefiable soils need to be continuous and the toe of the slope needs to be unsupported.

One feature that meets these conditions is the adjacent drainage channel, which is present immediately east of the site and approximately 450 feet east of the proposed hospital buildings.

Evaluation of lateral spreading potential is typically performed using the methodology suggested by Youd, Hansen, and Bartlett (2002).

However, for the conditions at this site, as discussed in the "Liquefaction Analysis and Results" section of this report, liquefiable layers are generally discontinuous between borings and the planned setback of approximately 450 feet of the proposed hospital buildings to the exposed slope of the drainage channel is sufficient to mitigate the potential for lateral spreading to adversely affect the proposed buildings.

It should be noted, however, that future developments within approximately 200 feet of the channel should be carefully evaluated for adverse impacts of lateral spreading. The distance of 200 feet was determined based on the typical spacing from the borings and the general discontinuous nature of liquefiable soils at the site.

5.7 SEISMIC (DRY) SETTLEMENT

Seismic (dry) settlement can occur in loose to medium dense, granular soils as a result of strong ground shaking. Since the liquefaction analysis is based on the historic high groundwater level

of 10 feet BGS, the upper 10 feet of soils were evaluated for seismic (dry) settlement. The upper soils generally consist of medium dense, silty sands and sandy silts are not considered subject to seismically induced (dry) settlement.

6.0 SEISMIC ANALYSIS

We performed a ground motion study for the proposed hospital development following the procedure outlined in ASCE-7-05, which is based on the MCE. The MCE is defined as an earthquake that results in ground motions that have a 2 percent chance of being exceeded in 50 years (a 2,475-year recurrence interval). The procedure is outlined in Table 6.

Table 6. Summary of ASCE-7 Procedure for Seismic Design

Step	Procedure	Reference
1	Compute Generalized Response Spectrum	ASCE 11.4.5
2	Compute MCE Response Spectrum	ASCE 11.4.6
3	Compute Probabilistic MCE Response Spectrum	ASCE 21.2.1
4	Compute Median Deterministic Response Spectrum	ASCE 21.2.2
5	Compute Deterministic MCE Response Spectrum	ASCE 21.2.2
6	Compute Deterministic Lower Limit on MCE Response Spectrum	ASCE 21.2.2
7	Compute Final Deterministic MCE Response Spectrum	ASCE 21.2.2
8	Compute Site-Specific MCE Response Spectrum	ASCE 21.2.3
9	Compute Two-Thirds of Design MCE Response Spectrum	ASCE 21.3
10	Compute 80 Percent of Generalized Design Response Spectrum	ASCE 21.3
11	Compute Final Design Response Spectrum	ASCE 21.3
12	Compute Final Design Acceleration Parameters	ASCE 21.4

The following sections outline our analysis methodology and present the results of our study.

STEP 1 - GENERALIZED RESPONSE SPECTRUM

The generalized response spectrum for a site is developed by identifying the spectral ordinates at periods of 0.2 and 1 second and identifying the appropriate site class in accordance with Table 1613.5.2 of the 2006 IBC. The spectral ordinates are obtained based on the site location from maps presented in Section 1613 of the 2006 IBC, or if the site class is S_F, then based on a site-specific analysis.

In accordance with the data obtained from our field investigation, the soils at the site may be classified as Site Type S_D. This classification is based on the blow count data from our explorations at the site and the shear wave velocity measurements performed at the site.

Section 11.4.5 of ASCE-7 summarizes the development of the generalized design response spectrum and the results of our analysis are for the site is presented in Table 7.

STEP 2 - MCE RESPONSE SPECTRUM

The MCE response spectrum is simply defined as the generalized response spectrum multiplied by 1.5. The MCE response spectral ordinates are presented in Table 7.

STEP 3 - PROBABILISTIC MCE RESPONSE SPECTRUM

The probabilistic MCE response spectrum is developed by performing a PSHA that takes into account faults that are a potential source of strong ground shaking at the site based on a given risk, defined as the recurrence interval. For the MCE, the recurrence interval is 2,475 years, which corresponds to ground motions that have a 2 percent probability of being exceeded in 50 years, as stated in Section 21.2.1 of ASCE-7.

Up until recently, the general practice in California to perform a PSHA has included the use of four ground motion attenuation relationships published in 2007 and 2008, collectively referred to as the NGA relationships. However, recently, CGS has identified concerns using the NGA relationships. As an alternative to using the NGAs, CGS has allowed use of prior versions of the attenuation relationships while an agreed procedure to address the identified concerns regarding the NGAs is developed.

Therefore, for this analysis, we utilized the attenuation relationship developed by Joyner, Boore, and Fumal (1997); Campbell and Bozorgnia (2003); and Abrhamson and Silva (1997).

Based on the data collected from our borings and the prior data available, we assumed a shear wave velocity of 980 feet per second to represent the soils at the site for use in our analysis.

The resulting probabilistic MCE response spectrum is presented in Table 7.

STEP 4 – MEDIAN DETERMINISTIC RESPONSE SPECTRUM

The deterministic MCE response spectrum is also developed by using EZ Frisk in conjunction with the attenuation relationship and soil stiffness estimate discussed above. The deterministic approach simply considers the maximum ground acceleration that may occur at the site as a result of an earthquake. The deterministic analysis differs from the probabilistic analysis in that recurrence intervals are not considered.

The resulting median deterministic response spectrum is presented in Table 7.

STEP 5 – DETERMINISTIC MCE RESPONSE SPECTRUM

The deterministic MCE response spectrum is computed by taking 150 percent of the median deterministic response spectrum and is presented in Table 7.

STEP 6 - DETERMINISTIC LOWER LIMIT ON MCE RESPONSE SPECTRUM

The deterministic lower limit MCE response spectrum is defined in ASCE-7 Section 21.2.2 as the response spectrum that results using prescribed spectral ordinates of 1.5 and 0.6 for 0.2 and 1 second periods, respectively. The resulting deterministic lower limit on MCE response spectrum is presented in Table 7.

STEP 7 – FINAL DETERMINISTIC MCE RESPONSE SPECTRUM

The final deterministic MCE response spectrum is the greater of the deterministic MCE and the lower limit response spectrum as defined in ASCE-7 Section 21.2.2 and is presented in Table 7.

STEP 8 - SITE-SPECIFIC MCE RESPONSE SPECTRUM

As outlined in ASCE-7 Section 21.2.3, the site-specific MCE response spectrum shall be taken as the lesser of the probabilistic MCE computed in Step 3 and the final deterministic MCE computed in Step 7. The resulting site-specific MCE response spectrum is presented in Table 7.

STEP 9 – TWO-THIRDS OF THE SITE-SPECIFIC DESIGN RESPONSE SPECTRUM

Section 21.3 of ASCE-7 allows the site-specific MCE response spectrum computed in Step 8 to be factored by two-thirds for subsequent comparison to 80 percent of the generalized response spectrum that was computed in Step 1. Two-thirds of the site-specific MCE response spectrum is presented in Table 7.

STEP 10 - 80 PERCENT OF THE GENERALIZED RESPONSE SPECTRUM

Section 21.3 of ASCE-7 establishes the lower bound for design ground motions as 80 percent of the generalized response spectrum computed in Step 1. Eighty percent of the generalized response spectrum is presented in Table 7.

STEP 11 – FINAL DESIGN RESPONSE SPECTRUM

To develop the final design response spectrum in Step 8, the spectral ordinates computed in Steps 9 and 10 are compared. If the values computed in Step 9 are less than 80 percent of the generalized response spectrum, the value from the 80 percent response spectrum is used; otherwise, the values computed in Step 9 are used.

The resulting final design response spectrum is, therefore, a hybrid curve based on the generalized response spectrum, the probabilistic MCE response spectrum, and the deterministic MCE response spectrum. The final design response spectrum is presented in Table 7.

Table 7. Spectral Ordinates

Period (s)	Computed Spectral Ordinate from Steps 1 through 11 (g)										
	Step Number										
	1	2	3	4	5	6	7	8	9	10	11
0.000	0.483	0.725	0.685	0.607	0.911	1.500	1.500	0.685	0.457	0.387	0.457
0.050	0.813	1.219	0.877	0.756	1.134	1.500	1.500	0.877	0.585	0.650	0.650
0.100	1.143	1.714	1.143	0.948	1.422	1.500	1.500	1.143	0.762	0.914	0.914
0.200	1.209	1.813	1.505	1.270	1.905	1.500	1.905	1.505	1.004	0.967	1.004
0.300	1.209	1.813	1.531	1.337	2.006	1.500	2.006	1.531	1.021	0.967	1.021
0.400	1.209	1.813	1.451	1.321	1.982	1.500	1.982	1.451	0.968	0.967	0.968
0.500	1.209	1.813	1.366	1.312	1.968	1.500	1.968	1.366	0.911	0.967	0.967
0.750	0.887	1.330	1.144	1.167	1.751	1.200	1.751	1.144	0.763	0.709	0.763
1.000	0.665	0.998	0.965	0.957	1.436	0.900	1.436	0.965	0.644	0.532	0.644
2.000	0.333	0.499	0.535	0.427	0.641	0.450	0.641	0.535	0.357	0.266	0.357

Table 7. Spectral Ordinates (continued)

Period (s)	Computed Spectral Ordinate from Steps 1 through 11 (g)										
	Step Number										
	1	2	3	4	5	6	7	8	9	10	11
3.000	0.222	0.333	0.332	0.268	0.402	0.300	0.402	0.332	0.221	0.177	0.221
4.000	0.166	0.249	0.229	0.184	0.276	0.225	0.276	0.229	0.153	0.133	0.153

STEP 12 – COMPUTATION OF FINAL ACCELERATION PARAMETERS

Computation of the final acceleration parameters is requires comparing the values computed for S_{DS}, S_{D1}, S_{Ms}, and S_{M1} with limiting values in accordance with ACSE-7 Section 21.4. Table 8 summarizes the parameters used in Step 1, the Generalized Response Spectrum, and presents the final acceleration parameters in accordance with ASCE-7, Section 21.4.

Table 8. Final Acceleration Parameters

Parameter	Short Period (T_s = 0.2 second)	1-Second Period (T_1 = 1.0 second)
MCE Spectral Acceleration, S	1.813	0.665
Site Class	D	
Site Coefficient, F_a and F_v	1.0	1.5
Adjusted Spectral Acceleration, S_M	S_{MS} = 1.506 g	S_{M1} = 0.965 g
Design Spectral Response Acceleration Parameters, S_D	S_{DS} = 1.00 g	S_{D1} = 0.644 g

7.0 CONCLUSIONS

7.1 GENERAL

Based on our review of available information, the results of our explorations, and the laboratory testing and analyses, the proposed development is feasible from a geotechnical perspective. The site is free of geologic or seismic hazards that would preclude the proposed development. Although there is a potential for liquefaction settlement and strong ground shaking at the site, these hazards can be mitigated with proper design and construction practices.

The proposed buildings may be supported on drilled shaft foundations that develop their resistance in dense native soils at the site. Detailed discussion regarding our assumptions and drilled shaft capacity calculations is presented in the "Drilled Shaft Foundations" section of this report.

The building floor slab may be established on grade, provided the recommendations presented in the "Floor Slabs" section of this report are followed.

7.2 COMMENTS ON PRIOR DATA AND ANALYSIS

The data available from the prior explorations are useful for general background information and generally correlates well with the data obtained during our investigation with the following notable exceptions:

- Considerably less gravel was logged in our explorations than is reported in the prior borings
- Considerably more fine-grained layers were logged in our explorations than are reported in the prior borings

We attribute these differences to our ability to better identify these conditions through more frequent sampling and more intensive laboratory testing. It is worth noting that in our field classifications, we also logged more granular soils; however, upon further review and testing in our laboratory, many of those layers were changed based on the plasticity testing.

We also performed liquefaction analysis using the data from the prior explorations. However, the combination of limited sampling intervals and limited laboratory testing available from the prior investigations severely limits our ability to obtain meaningful results. This is because in order to properly identify the layering and various soil input parameters, considerable guesswork would be required. Therefore, utilizing the prior explorations and data in their current state is several degrees of precision below the level of analysis we performed with the current explorations.

It should be noted that for other sites, where the stratigrahpy is more uniform, the limited data available may be adequate.

8.0 RECOMMENDATIONS

The following sections present recommendations based on the results from our geotechnical evaluation of the site, prior geotechnical reports, our understanding of the proposed development, and our discussions with the project team.

8.1 DRILLED SHAFT FOUNDATIONS

8.1.1 Axial Capacity

Downward and upward axial shaft capacities for 18-, 24-, 30-, 36-, and 48-inch-diameter drilled shafts are presented on Figures 9 and 10, respectively.

The capacities presented on Figures 9 and 10 may be increased by one-third to resist short-term wind or seismic loading. These capacities are based on the strength of the subsurface materials; the strength of the shafts should also be checked for adequacy.

To develop the axial capacities presented on Figures 9 and 10, drilled shafts should extend at least 40 feet below the bottom of the pile caps. Please note that longer shafts may be necessary to develop lateral capacities as presented in Table 9.

In developing these capacities, we assumed the upper 10 feet of soils beneath the pile cap to be dense sand, the soils between 10 and 30 feet below the pile cap to be liquefiable, and the soils below 30 feet to be dense sand.

8.1.2 Settlement

We estimate static settlement of the one-story building to be on the order of ¼ inch or less and static settlement of the five-story tower will be ½ inch or less.

8.1.3 Lateral Capacities

We computed the lateral capacities of the piles using the computer program L-Pile, by ENSOFT, Inc. The resistance of the soils adjacent to 18-, 24-, 30-, 36-, and 48-inch diameter drilled shafts are presented in Table 9 for ½ inch deflection at the top of the shaft, assuming fixed-head conditions.

Table 9. Lateral Load Design Data – Drilled Shafts

	Shaft Diameter (inches)				
	18	24	30	36	48
Deflection (inches)	½	½	½	½	½
Lateral Design Load (kips)	60	100	140	185	280
Maximum Moment (foot-kips)	258	560	760	1,080	2,080
Depth to Maximum Moment (feet)	0	0	0	0	0
Depth to Zero Deflection (feet)	10	20	30	35	40
Depth to Zero Moment	25	30	35	40	45

The passive resistance of the soils acting against the face of the drilled shaft cap may also be used to resist lateral loading. A passive pressure equal to 400 psf per foot of depth may be used without reduction, in conjunction with the lateral shaft capacities presented above.

8.1.4 Construction Considerations

Drilled shaft excavations will encounter caving soils and shallow groundwater. Construction provisions to mitigate these conditions include the use of drilling mud and/or steel casing.

Concrete for drilled shafts shall be placed using a tremie in accordance with American Concrete Institute standards.

8.2 FLOOR SLABS

Fill is required at the site to raise the grade to the planned finish floor level. Prior to placement of new fill, the upper 2 feet of on-site soils should be removed and recompacted as specified in the "Site Preparation" section of this report.

Combined with the planned fill, the removal and re-compaction of the upper 2 feet will result in approximately 4 to 10 feet of properly compacted fill beneath the floor slabs.

The building floor slab may be established on properly compacted fill soils.

A capillary break should be installed beneath building floor slabs that will have moisture-sensitive flooring. The capillary break should consist of 4 inches of gravel underlying a 10-mil, HDPE membrane that is contained between two 2-inch-thick layers of clean sand.

For structural evaluation of the building floor slab, a subgrade modulus of 300 pci may be assumed. This value includes reductions for the size of the floor slab.

8.3 PAVEMENT

8.3.1 Asphalt Pavement

Table 10 presents the minimum recommended paving and base course thickness for traffic indices of 4, 5, and 7 based on an assumed R-value of 50 for imported fill materials. Our recommendations are based on the California Department of Transportation method of pavement design.

Table 10. AC Pavement and Base Thickness

Traffic Index	Traffic Use	AC (inches)	Base Course (inches)
4	Parking	3.0	4.0
5	Drive Lanes	4.0	6.0
7	Streets and Loading Dock	5.0	6.0

We can determine the recommended paving and base course thicknesses for other traffic indices if required. Careful inspection should be conducted to verify that the recommended thicknesses or greater are achieved and that proper construction procedures are followed.

8.3.2 PCC Sections

PCC paving sections were determined in accordance with procedures developed by the Portland Cement Association, assuming that the PCC will have a compressive strength of at least 4,000 psi.

Table 11 presents the minimum recommended concrete paving and base course thickness for PCC pavement.

Table 11. PCC Paving and Base Thickness for R-Value of 71

Traffic Index	Traffic Use	PCC (inches)	Base Course (inches)
4	Parking	4.0	4.0
5	Drive Lanes	5.0	4.0
7	Streets and Loading Dock	6.0	6.0

We can determine the recommended paving and base course thicknesses for other traffic indices if required. Careful inspection should be conducted to verify that the recommended thicknesses or greater are achieved and that proper construction procedures are followed.

8.4 SITE PREPARATION

Site preparation for this project will include the clearing and grubbing for the removal of all vegetation and the removal and re-compaction of the upper 2 feet of soils at the site.

All exposed bottoms should be carefully observed by our technician to insure the adequate removal of vegetation and also to check for the presence of localized soft or yielding layers.

The exposed bottoms, once approved by our technician, should be scarified for a depth of 6 inches and compacted to at least 95 percent of the maximum obtainable density per ASTM D 1557.

8.5 TEMPORARY SLOPES AND VERTICAL CUTS

Temporary, unsurcharged slopes should not exceed a 1H:1V gradient when constructed in existing fill and/or native materials. Such temporary slopes should not exceed 10 feet high.

Temporary vertical cuts that will be beneficial for foundation construction may be made into the dense, native materials, but should not exceed 4 feet in height.

Temporary cut slopes should be protected from erosion by directing surface water away from the top of the slopes by placing sand bags at the top of the slopes, and during wet weather, covering the slopes with plastic sheeting.

8.6 GRADING CONSIDERATIONS

8.6.1 General

If not carefully executed, site preparation can result in the presence of unsuitable (disturbed and/or excessively soft) soil conditions that may require additional effort to mitigate or in more extreme cases, if not detected, could result in significant costs to repair damage to flatwork or structures.

Earthwork should be planned and executed to minimize subgrade disturbance. Soil that has been disturbed during site preparation activities, and/or soft or loose zones identified during probing, should be removed beneath floor slabs.

8.6.2 Compaction

All granular fill materials should be compacted to at least 95 percent of the maximum dry density at or near the optimum moisture content as determined by ASTM D 1557. Cohesive fills should be compacted to at least 90 percent of the maximum dry density, as determined by ASTM D 1557, and moisture conditioned to 4 percent over the optimum moisture content.

Fill materials should be placed in loose lifts not exceeding 8 inches in thickness, properly moisture conditioned, and mechanically compacted to the minimum required density. For granular fills, compaction may be achieved using heavy equipment and vibration.

8.6.3 Site Drainage

Adequate site drainage should be maintained at all times. Site drainage should be collected and routed to suitable discharge points.

8.7 MATERIALS FOR FILL

8.7.1 General

Imported fill materials should be free of organic matter and other deleterious materials and, in general, should consist of particles no larger than 3 inches in largest dimension.

The following sections provide recommendations for the re-use of on-site materials in compacted fills and also for the use of imported materials in required fills.

8.7.2 On-Site Native Soils

The on-site soils native, granular soils are suitable for use in the required fills, provided that particles larger than 3 inches in largest dimension are removed. Where larger-sized materials are used, the percentage of these materials in a representative section of the fill should be limited to 5 percent.

8.7.3 Imported Granular Material

Imported fill materials should have a sand equivalent of at least 35 and should be approved by our firm prior to import to the site.

9.0 CONSTRUCTION OBSERVATION

Geotechnical testing and observation during construction is considered to be a continuing part of the geotechnical consultation. To confirm that the recommendations presented herein remain applicable, our representative should be present at the site to provide appropriate observation and testing.

As satisfactory foundation construction and grading depends on the quality of construction, it is essential that qualified personnel be present to perform the required geotechnical testing and inspection.

The presence of an experienced representative at the site during construction provides value and benefits to the project and can often result in schedule and cost savings for the owner by approaching the geotechnical testing and inspection responsibilities in a proactive and team-oriented manner.

10.0 LIMITATIONS

We have prepared this report for use by Universal Health Services and their design and construction team for this project. The data and report can be used for estimating purposes, but our report, conclusions, and interpretations should not be construed as a warranty of the subsurface conditions and are not applicable to other sites.

Soil borings indicate soil conditions only at specific locations and only to the depths penetrated. They do not necessarily reflect soil strata or water level variations that may exist between exploration locations. If subsurface conditions differing from those described are noted during the course of excavation and construction, re-evaluation will be necessary.

The recommendations presented in this report are based on the current site development plan and structural information provide to us by the project team. If design changes are made, we should be retained to review our conclusions and recommendations and to provide a written evaluation or modification.

The scope of our services does not include services related to construction safety precautions, and our recommendations are not intended to direct the contractor's methods, techniques, sequences or procedures, except as specifically described in our report for consideration in design.

Within the limitations of scope, schedule, and budget, our services have been executed in accordance with that degree of skill and care ordinarily exercised by reputable geotechnical consultants practicing in this area at the time this report was prepared. No warranty or other conditions, express or implied, should be understood.

♦ ♦ ♦

We sincerely appreciate the opportunity to be of service to you. Please call if you have questions concerning this report or if we can provide additional services.

Sincerely,

GeoDesign, Inc.

Susan F. Kirkgard, C.E.G.
Associate Engineering Geologist



Christopher J. Zadoorian, G.E.
Principal Engineer



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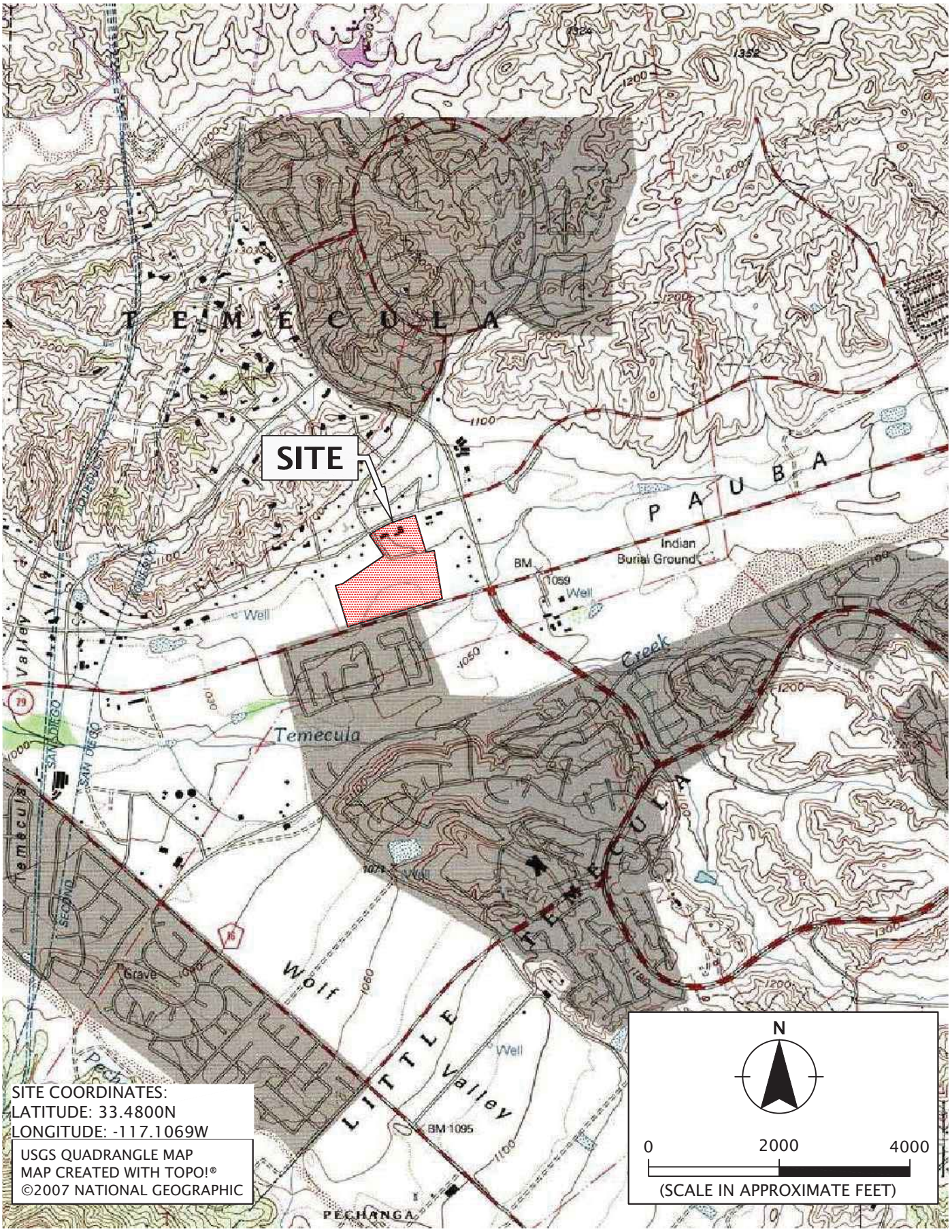
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FIGURES



GEODESIGN INC 2121 S Towne Centre Place - Suite 130 Anaheim CA 92806 Off 714.634.3701 Fax 714.634.3711	TURNERCONS-1-02	**VICINITY MAP**
	AUGUST 2010	PROPOSED TEMECULA HOSPITAL TEMECULA, CA — **FIGURE 1**

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LEGEND:

GDI B-1	BORING (GEODESIGN, INC., MAY AND JULY 2010)
B-1	PRIOR BORING (PSI, MARCH 2004)
CPT-1	PRIOR CONE PENETROMETER (PSI, MARCH 2004)
MR B1	PRIOR MUD-ROTARY BORING (PSI, JUNE 2006)
HS B1	PRIOR HOLLOW-STEM AUGER BORING (PSI, JUNE 2006)
MW-1	PRIOR GOUNDWATER MONITORING WELL (PSI)
A A'	CROSS SECTION

N

0 150 300

(SCALE IN FEET)

SITE PLAN BASED ON DRAWING PROVIDED BY TURNER CONSTRUCTION COMPANY JULY 8, 2010

SITE PLAN

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

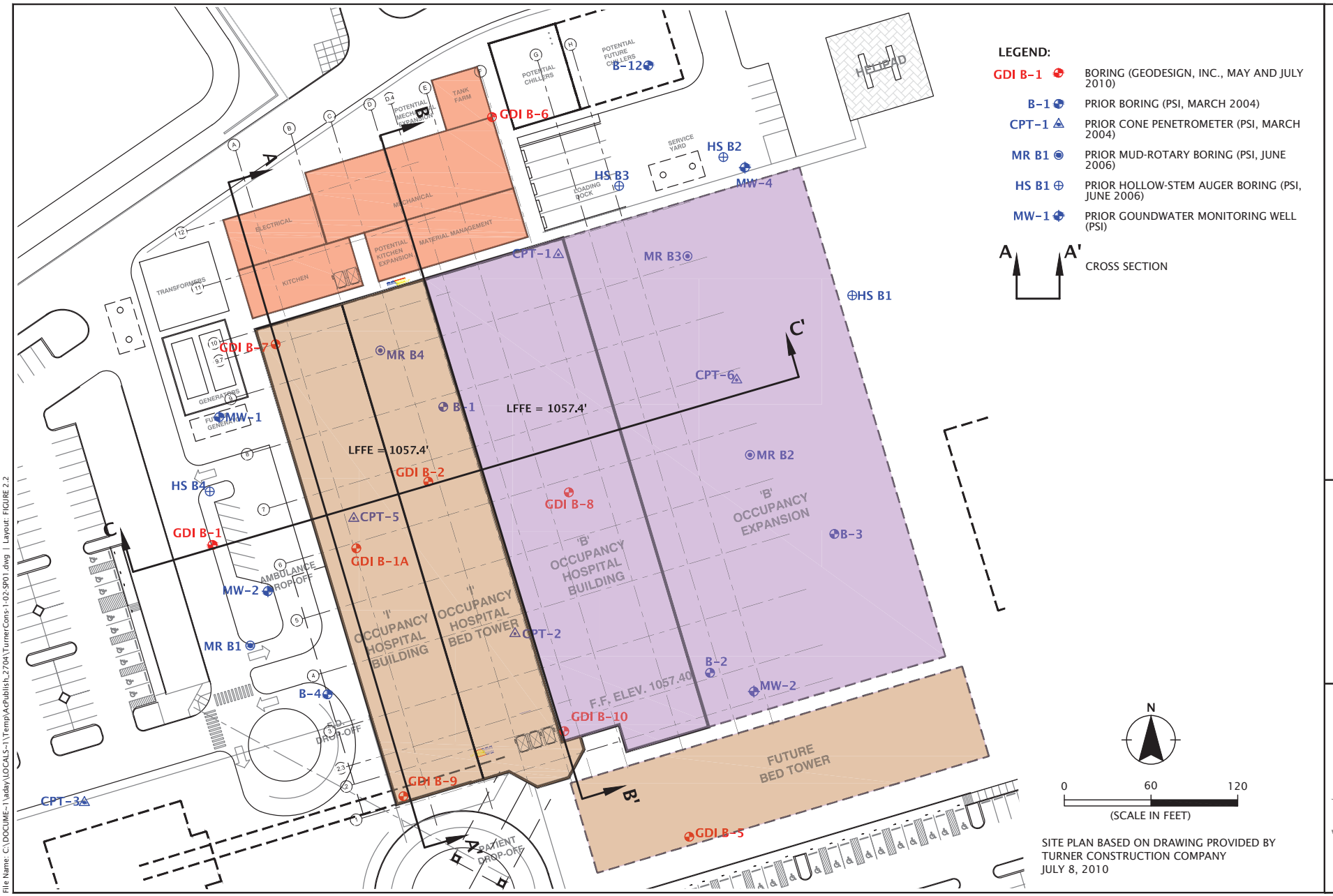
FIGURE 2.1

TURNERCONS-1-02

AUGUST 2010

GEODESIGN INC
2121 S Towne Centre Place - Suite 130
Anaheim CA 92806
Off 714.634.3701 Fax 714.634.3711

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SITE PLAN BASED ON DRAWING PROVIDED BY TURNER CONSTRUCTION COMPANY JULY 8, 2010

SITE PLAN

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE 2.2

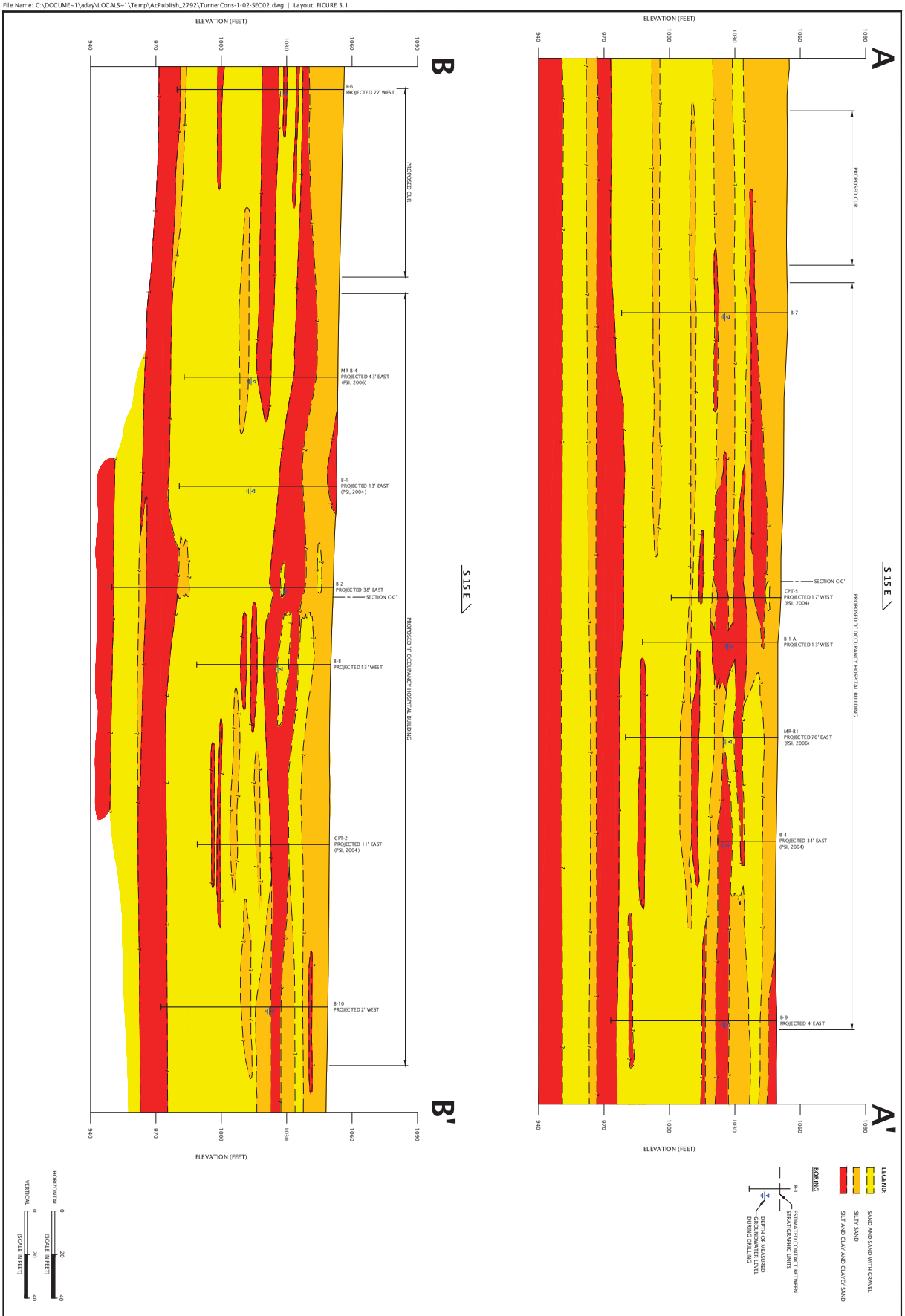
TURNERCONS-1-02

AUGUST 2010

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File Name: C:\DOCUME~1\aday\LOCALS~1\Temp\AcPublish_2704\TurnerCons-1-02-SP01.dwg | Layout: FIGURE 2.2

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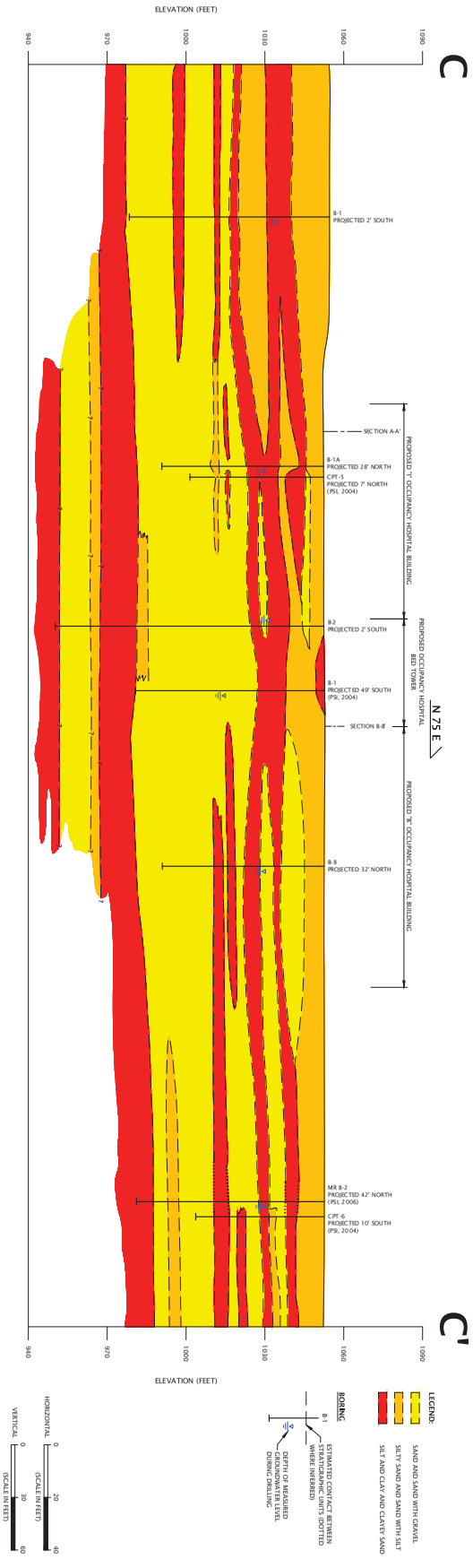
DESIGNED BY: GDI ENG	CHECKED BY: SFK	TURNERCONS-1-02	GEOLOGIC SECTIONS
DRAWN BY: CWD/AKD	APPROVED BY:	AUGUST 2010	PROPOSED TEMECULA HOSPITAL TEMECULA, CA

NO.	DATE	REVISION DESCRIPTION	BY	APPR.
X	XX/XX/08	PRELIMINARY	GDI	GDI

FIGURE 3.1

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DESIGNED BY: GDI ENG	CHECKED BY: SFK	TURNERCONS-1-02	GEOLOGIC SECTIONS
DRAWN BY: CWD	APPROVED BY:	AUGUST 2010	PROPOSED TEMECULA HOSPITAL TEMECULA, CA — FIGURE 3.2

NO.	DATE	REVISION DESCRIPTION	BY	APPR.
X	XX/XX/08	PRELIMINARY	GDI	GDI

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SITE COORDINATES:
LATITUDE: 33.4800N
LONGITUDE: -117.1069W
SITE PLAN BASED ON USGS, 2000, "GEOLOGIC MAP OF THE PECHANGA 7.5' QUADRANGLE, SAN DIEGO AND RIVERSIDE COUNTIES, CALIFORNIA: DIGITAL DATABASE" VERSION1.0.

DESCRIPTION OF MAP UNITS

MODERN SURFICIAL DEPOSITS - Sediment that has been recently transported and deposited in channels and washes, on surfaces of alluvial fans and alluvial plains, and on hillslopes and in artificial fills. Soil-profile development is non-existant. Includes:

Qw Active channel and wash deposits (late Holocene) - Unconsolidated to locally poorly unconsolidated sand and gravel deposits in active washes of streams.

Qa Active alluvial flood plain deposits (late Holocene) - Unconsolidated to locally poorly unconsolidated sand and gravel deposits in active alluvial flood plains.

YOUNG SURFICIAL DEPOSITS - Sedimentary units that are slightly consolidated to cemented and slightly to moderately dissected. Alluvial fan deposits typically have high coarse:fine clast ratios. Younger surficial units have upper surfaces that are capped by slight to moderately developed pedogenic-soil profiles. Includes:

Qya Young alluvial flood plain deposits (Holocene and late Pleistocene) - Mostly poorly consolidated, poorly sorted, permeable flood plain deposits.

Qyc Young colluvial deposits (Holocene and late Pleistocene) - Mostly poorly consolidated and poorly sorted slope wash and stream deposits.

Qyf Young alluvial fan deposists (Holocene and late Pleistocene) - Mostly poorly consolidated and very poorly sorted sand, gravel, cobble and boulder deposits in young alluvial fans.

OLD SURFICIAL DEPOSITS - Sediments that are moderately consolidated and slightly to moderately dissected. Older surficial deposits have upper surfaces that are capped by moderate to well-developed pedogenic soils. Includes:

Qoa Older alluvial flood plain deposits (Pleistocene, younger than 500,000 years) - Mostly moderately well consolidated, poorly sorted, permeable flood plain depositts.

Qoc Older colluvial deposits (Pleistocene, younger than 500,000 years) - Mostly moderately well consolidated, poorly sorted slope wash and stream deposits.

Qof2 Older fan deposits (Pleistocene, younger than 500,000 years) - Mostly poorly consolidated fan, debris flow and talus deposits. Clasts possess a moderately well developed clay coating but are otherwise fresh.

VERY OLD SURFICIAL UNITS - Sediments that are slightly to well consolidated to indurated, and moderately to well dissected. Upper surfaces are capped by moderate to well-developed pedogenic soils. Includes:

Qvoa Very old alluvial flood plain deposits (early Pleistocene) - Mostly well-indurated, poorly sorted, semi-permeable clay and sand flood plain deposits.

Qvoc Very old colluvial deposits (early Pleistocene) - Mostly well-indurated, poorly sorted, hillslope, clay and sand colluvial deposits.

Qvof Very old alluvial fan deposits (early Pleistocene) - Mostly very well-indurated, reddish-brown, sand and cobble, early Pleistocene aluvial fan deposits.

Qp Pauba Formation (early Pleistocene) - Light-brown moderately well-indurated, extensively crossbedded, channeled and filled sandstone and siltstone that contains occassional intervening cobble-and -boulder conglomerate beds.

BEDROCK UNITS

Tt Temecula Arkose (Pleistocene) - Pale greenish-yellow, well-indurated, medium- and coarse-grained sandstone with thin interstratified beds of fine-grained, tuffaceous sandstone, siltstone, and claystone. Pebble and cobble conglomerate interbeds composed of locally derived basement rock clasts are also common and range in thickness from a few centimeters to a meter or more.

Kr Granodiorite of Rainbow (Cretaceous) - Leucocratic hornblende-biotite granodiorite; medium- to coarse-grained, massive.

MAP SYMBOLS

- Contact between map units.
- Fault - dashed where inferred, dotted where concealed. Arrow and number indicate direction and angle of dip of fault plane.
- Anticline - solid where accurately located; dotted where concealed.
- Syncline - solid where accurately located; dotted where concealed.
- Strike and dip of inclined sedimentary beds.
- Strike and dip of overturned sedimentary beds.
- Strike and dip of foliation.
- Strike of vertical foliation.

LOCAL GEOLOGY

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE 4

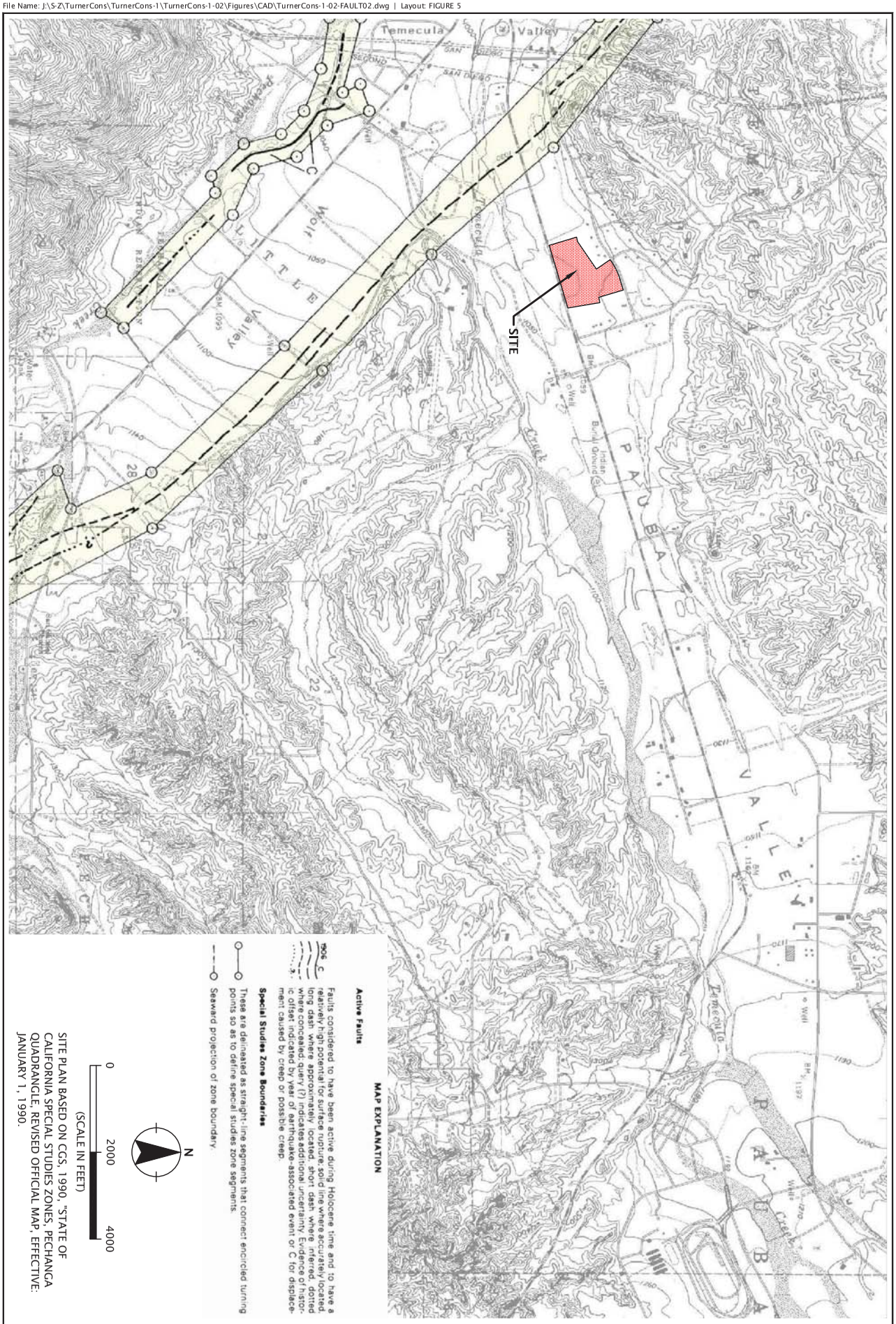
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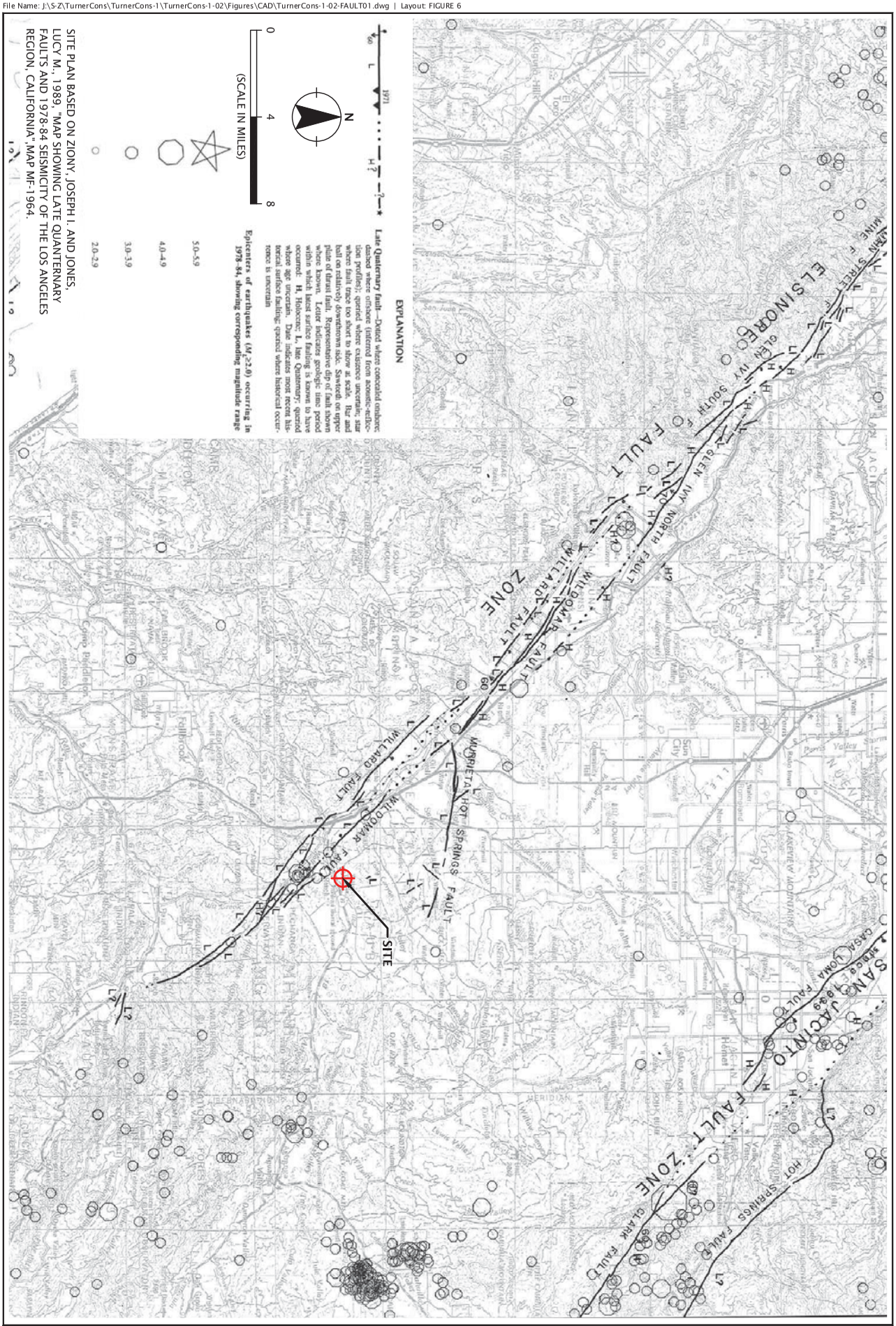
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Printed By: aday | Print Date: 8/16/2010 8:49:11 AM
File Name: J:\S-Z\TurnerCons\TurnerCons-1\TurnerCons-1-02\Figures\CAD\TurnerCons-1-02-FAULT02.dwg | Layout: FIGURE 5



GEODESIGN INC 2121 S Towne Centre Place - Suite 130 Anaheim CA 92806 Off 714.634.3701 Fax 714.634.3711	TURNERCONS-1-02	**ALQUIST-PRIOLO FAULT MAP**	
	AUGUST 2010	PROPOSED TEMECULA HOSPITAL TEMECULA, CA	**FIGURE 5**

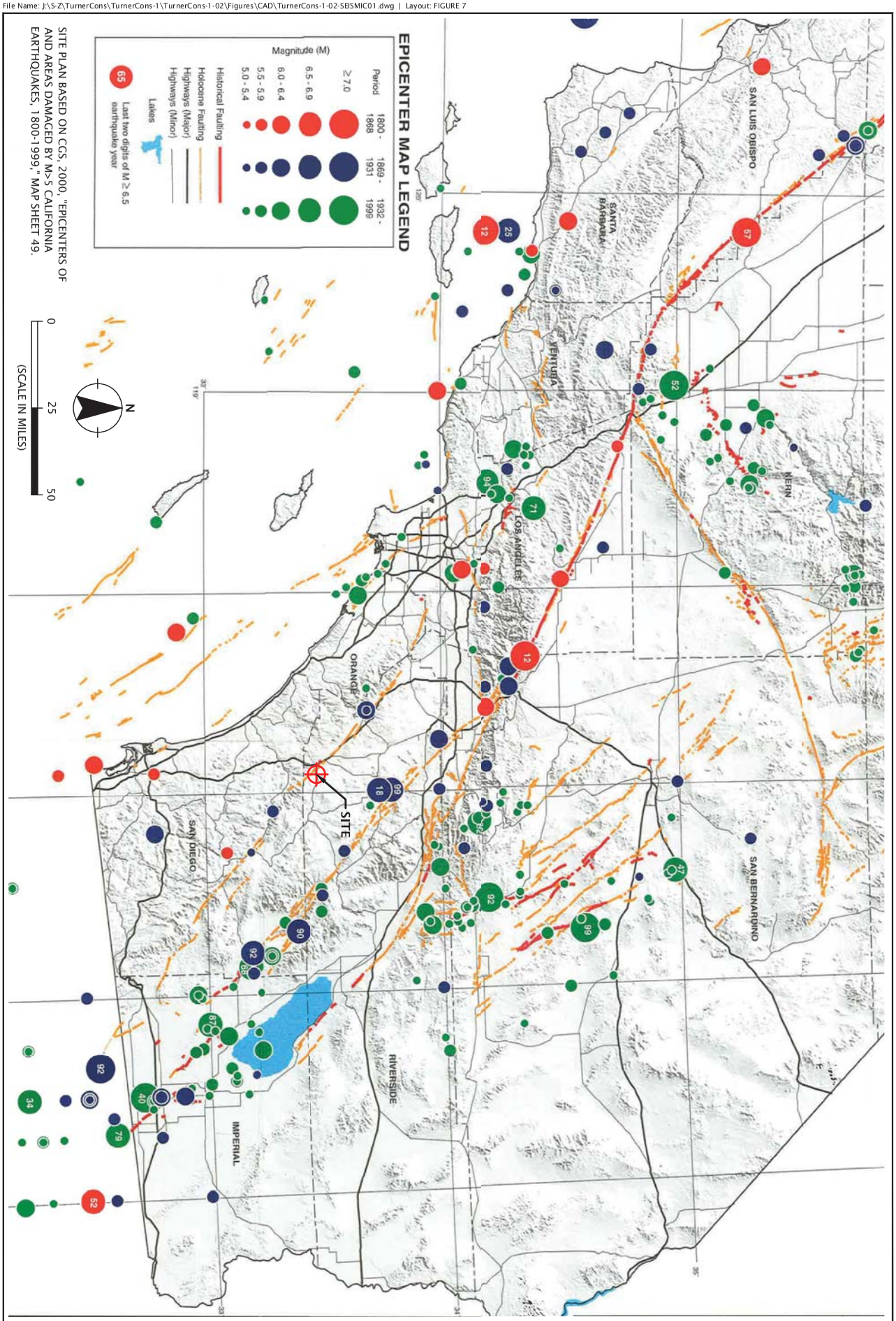
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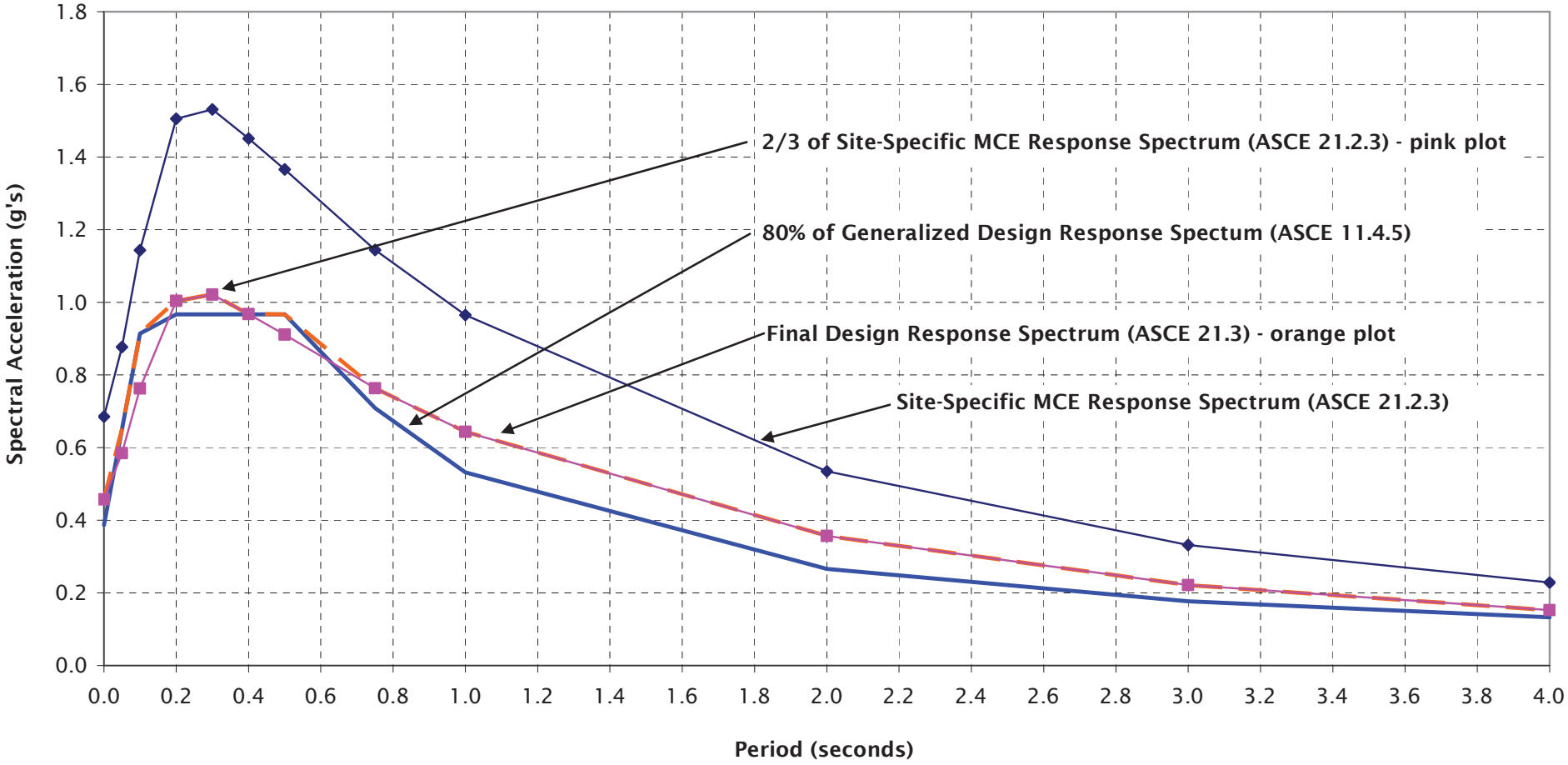
SITE PLAN BASED ON ZIONY, JOSEPH I. AND JONES, LUCY M., 1989, "MAP SHOWING LATE QUANTERNARY FAULTS AND 1978-84 SEISMICITY OF THE LOS ANGELES REGION, CALIFORNIA", MAP MF-1964.

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TURNERCONS-1-02	**REGIONAL FAULT MAP**	
AUGUST 2010	PROPOSED TEMECULA HOSPITAL TEMECULA, CA	**FIGURE 6**

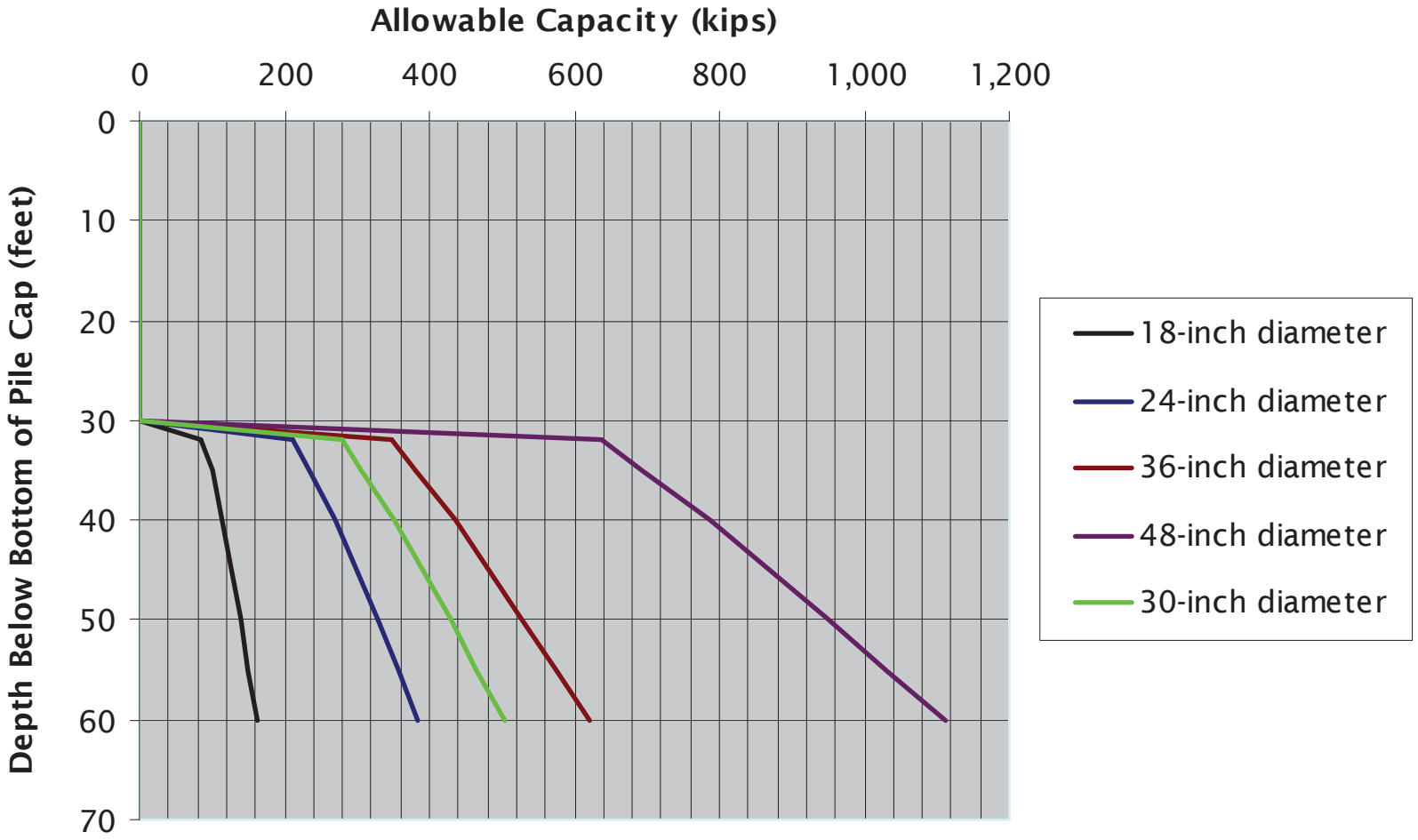


GEODESIGN INC 2121 S Towne Centre Place - Suite 130 Anaheim CA 92806 Off 714.634.3701 Fax 714.634.3711	TURNERCONS-1-02	HISTORIC SEISMICITY	
	AUGUST 2010	PROPOSED TEMECULA HOSPITAL TEMECULA, CA	FIGURE 7



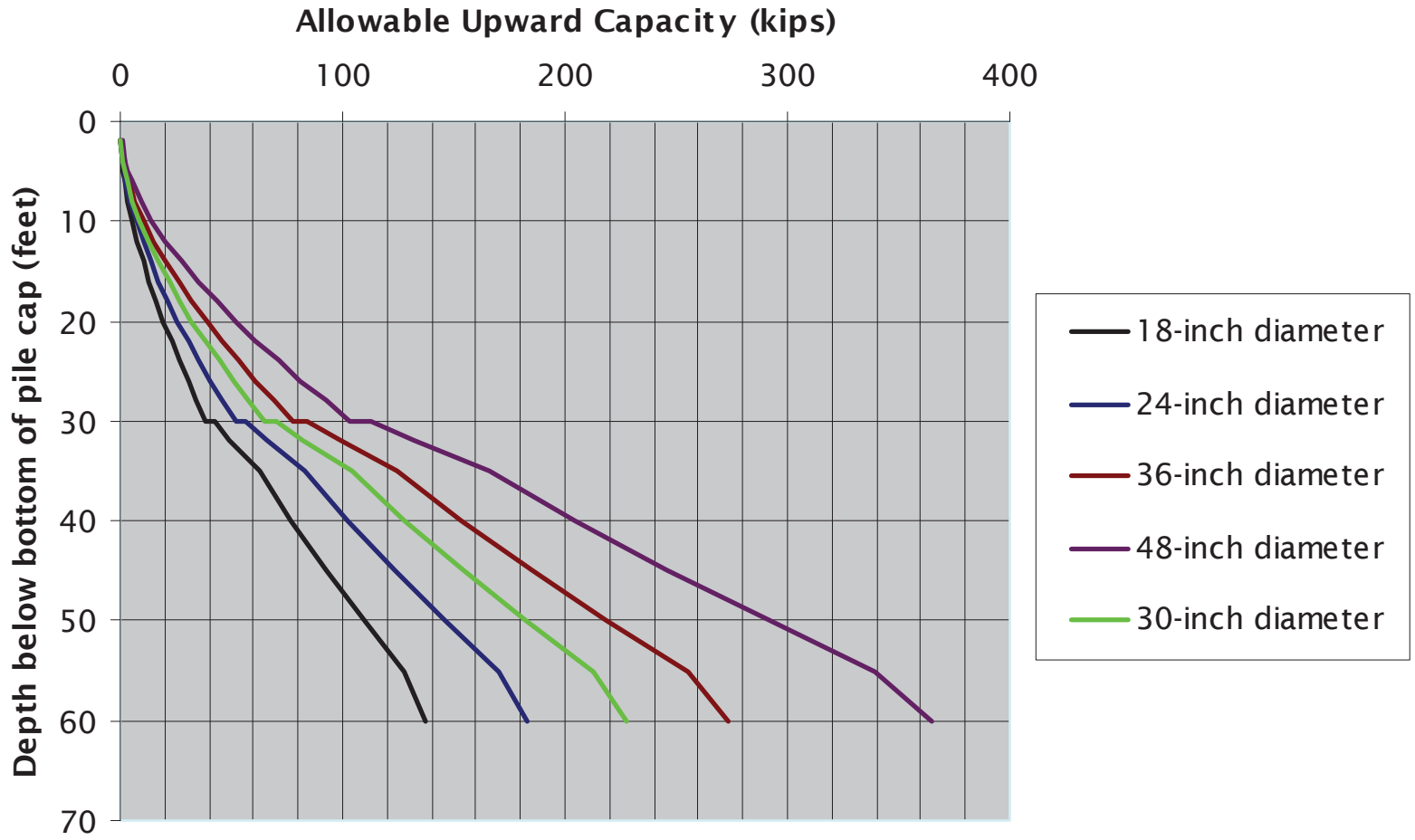
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TURNERCONS-1-02	**FINAL DESIGN RESPONSE SPECTRUM**	
AUGUST 2010	PROPOSED TEMECULA HOSPITAL TEMECULA, CA	**FIGURE 8**



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TURNERCONS-1-02	**DOWNWARD SHAFT CAPACITIES**	
AUGUST 2010	PROPOSED TEMECULA HOSPITAL TEMECULA, CA	**FIGURE 9**



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TURNERCONS-1-02	**UPWARD SHAFT CAPACITIES**	
AUGUST 2010	PROPOSED TEMECULA HOSPITAL TEMECULA, CA	**FIGURE 10**

APPENDIX A

APPENDIX A

FIELD EXPLORATIONS

GENERAL

Eleven borings were drilled by SoCal Drilling Company as part of our current investigation for the proposed hospital development in Temecula, California, at the locations shown on Figure 2.1 and 2.2. The borings were drilled in May and July 2010 using a mud-rotary, truck-mounted drill rig within and in close proximity to the footprint of the proposed hospital buildings.

The boring locations and elevations were surveyed in the field by Excel Engineering of Escondido, California, prior to our field mobilizations.

The borings were logged by a licensed engineering geologist and licensed geotechnical engineer who maintained a continuous log of the explorations. Representative bulk and undisturbed samples of the various soils encountered were obtained for geotechnical laboratory testing. Classifications and sampling intervals are presented on the exploration logs included as Figures A-1 through A-11 in this appendix.

SOIL SAMPLING

We performed closely spaced sampling intervals of 2.5 feet, using SPT and California split-spoon samplers between depths of approximately 30 and 60 feet BGS. Blow counts by the inch were recorded between these depths (excluding boring B-8). The summary of the blow count information for each boring is presented at the end of this appendix.

SPTs were performed in the borings in general accordance with ASTM D 1586. The 2-inch-diameter, split-spoon sampler was driven into the soil with a 140-pound hammer free-falling 30 inches. The SPT sampler was driven a total of 18 inches or to refusal. The number of blows required to drive the sampler the final 12 inches was recorded on the exploration log included in this appendix, unless otherwise noted.

Samples for laboratory testing were obtained from the borings using a modified California split-spoon sampler in general accordance with ASTM D 3550. The split-spoon sampler was driven into the soil with a 40-pound hammer free-falling 30 inches. The sampler was driven a total of 18 inches or to refusal. The number of blows required to drive the sampler the final 12 inches was recorded on the log included in this appendix, unless otherwise noted.

SOIL CLASSIFICATION

The soil samples were classified in accordance with the "Exploration Key" (Table A-1) and "Soil Classification System" (Table A-2), which are included in this appendix. The exploration logs indicate the depths at which the soils or their characteristics change, although the change actually could be gradual. If the change occurred between samples locations, the depth was interpreted. Classifications and sampling intervals are presented on the exploration logs included in this appendix.

LABORATORY TESTING

CLASSIFICATION

The soil samples were classified in the laboratory to confirm field classifications. The laboratory classifications are presented on the exploration logs included in this appendix.

MOISTURE CONTENT

We tested the natural moisture content of selected samples obtained from the explorations in general accordance with ASTM D 2216. The natural moisture content is a ratio of the weight of the water to soil in a test sample and is expressed as a percentage. The moisture contents are presented on the exploration logs included in this appendix.

DRY DENSITY

We tested selected soil samples to determine the in situ dry density. The tests were performed in general accordance with ASTM D 2937. The dry density is defined as the ratio of the dry weight of the soil sample to the volume of that sample. The dry densities are presented on the exploration logs included in this appendix.

ATTERBERG LIMITS

The plastic limit and liquid limit (Atterberg limits) of 28 soil samples were determined in accordance with guidelines presented in ASTM D 2937. The results of the Atterberg limit tests are included as Figure A-12 in this appendix.

CONSOLIDATION

We performed a consolidation tests on one undisturbed sample. The consolidation test was conducted in general accordance with ASTM D 2435. The results of the consolidation test is included as Figure A-13 in this appendix.

STRENGTH TESTING

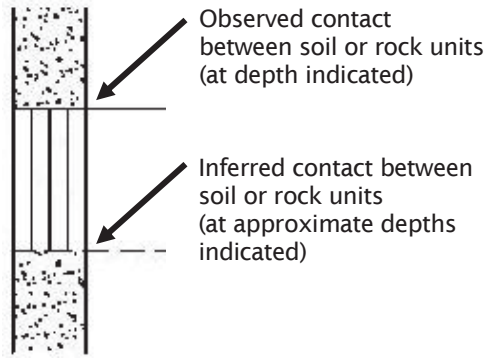
Direct shear tests were performed on 10 undisturbed samples. The direct shear tests were conducted in general accordance with ASTM D 3080. The results of the direct shear tests are presented on Figure A-14 in this appendix.

GRAIN SIZE TESTS

We performed percent fines testing on select samples. The percent fines determinations were performed in general accordance with guidelines presented in ASTM D 422 and ASTM D 1140. The results of the percent fines testing are presented on the exploratory logs on Figure A-15 in this appendix.

SYMBOL	SAMPLING DESCRIPTION
	Location of sample obtained in general accordance with ASTM D 1586 Standard Penetration Test with recovery
	Location of sample obtained using thin-wall Shelby tube or Geoprobe® sampler in general accordance with ASTM D 1587 with recovery
	Location of sample obtained using Dames & Moore sampler and 300-pound hammer or pushed with recovery
	Location of sample obtained using Dames & Moore or 3-inch-O.D. split-spoon sampler and 140-pound hammer or pushed with recovery
	Location of grab sample
	Rock coring interval
	Water level during drilling
	Water level taken on date shown

Graphic Log of Soil and Rock Types



GEOTECHNICAL TESTING EXPLANATIONS

ATT	Atterberg Limits	P	Pushed Sample
CBR	California Bearing Ratio	PP	Pocket Penetrometer
CON	Consolidation	P200	Percent Passing U.S. Standard No. 200 Sieve
DD	Dry Density	RES	Resilient Modulus
DS	Direct Shear	SIEV	Sieve Gradation
HYD	Hydrometer Gradation	TOR	Torvane
MC	Moisture Content	UC	Unconfined Compressive Strength
MD	Moisture-Density Relationship	VS	Vane Shear
OC	Organic Content	kPa	Kilopascal

ENVIRONMENTAL TESTING EXPLANATIONS

CA	Sample Submitted for Chemical Analysis	ND	Not Detected
P	Pushed Sample	NS	No Visible Sheen
PID	Photoionization Detector Headspace Analysis	SS	Slight Sheen
ppm	Parts per Million	MS	Moderate Sheen
		HS	Heavy Sheen

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EXPLORATION KEY

TABLE A-1

RELATIVE DENSITY - COARSE-GRAINED SOILS

Relative Density	Standard Penetration Resistance	Dames & Moore Sampler (140-pound hammer)	Dames & Moore Sampler (300-pound hammer)
Very Loose	0 – 4	0 - 11	0 - 4
Loose	4 – 10	11 - 26	4 - 10
Medium Dense	10 – 30	26 - 74	10 - 30
Dense	30 – 50	74 - 120	30 - 47
Very Dense	More than 50	More than 120	More than 47

CONSISTENCY - FINE-GRAINED SOILS

Consistency	Standard Penetration Resistance	Dames & Moore Sampler (140-pound hammer)	Dames & Moore Sampler (300-pound hammer)	Unconfined Compressive Strength (tsf)
Very Soft	Less than 2	Less than 3	Less than 2	Less than 0.25
Soft	2 - 4	3 – 6	2 - 5	0.25 - 0.50
Medium Stiff	4 - 8	6 – 12	5 - 9	0.50 - 1.0
Stiff	8 - 15	12 – 25	9 - 19	1.0 - 2.0
Very Stiff	15 - 30	25 – 65	19 – 31	2.0 - 4.0
Hard	More than 30	More than 65	More than 31	More than 4.0

PRIMARY SOIL DIVISIONS			GROUP SYMBOL	GROUP NAME
COARSE-GRAINED SOILS (more than 50% retained on No. 200 sieve)	GRAVEL (more than 50% of coarse fraction retained on No. 4 sieve)	CLEAN GRAVELS (< 5% fines)	GW or GP	GRAVEL
		GRAVEL WITH FINES (≥ 5% and ≤ 12% fines)	GW-GM or GP-GM	GRAVEL with silt
			GW-GC or GP-GC	GRAVEL with clay
		GRAVELS WITH FINES (> 12% fines)	GM	silty GRAVEL
			GC	clayey GRAVEL
			GC-GM	silty, clayey GRAVEL
	SAND (50% or more of coarse fraction passing No. 4 sieve)	CLEAN SANDS (<5% fines)	SW or SP	SAND
		SANDS WITH FINES (≥ 5% and ≤ 12% fines)	SW-SM or SP-SM	SAND with silt
			SW-SC or SP-SC	SAND with clay
		SANDS WITH FINES (> 12% fines)	SM	silty SAND
			SC	clayey SAND
			SC-SM	silty, clayey SAND
FINE-GRAINED SOILS (50% or more passing No. 200 sieve)	SILT AND CLAY	Liquid limit less than 50	ML	SILT
			CL	CLAY
			CL-ML	silty CLAY
			OL	ORGANIC SILT or ORGANIC CLAY
		Liquid limit 50 or greater	MH	SILT
			CH	CLAY
			OH	ORGANIC SILT or ORGANIC CLAY
HIGHLY ORGANIC SOILS			PT	PEAT

MOISTURE CLASSIFICATION

Term	Field Test
dry	very low moisture, dry to touch
moist	damp, without visible moisture
wet	visible free water, usually saturated

ADDITIONAL CONSTITUENTS

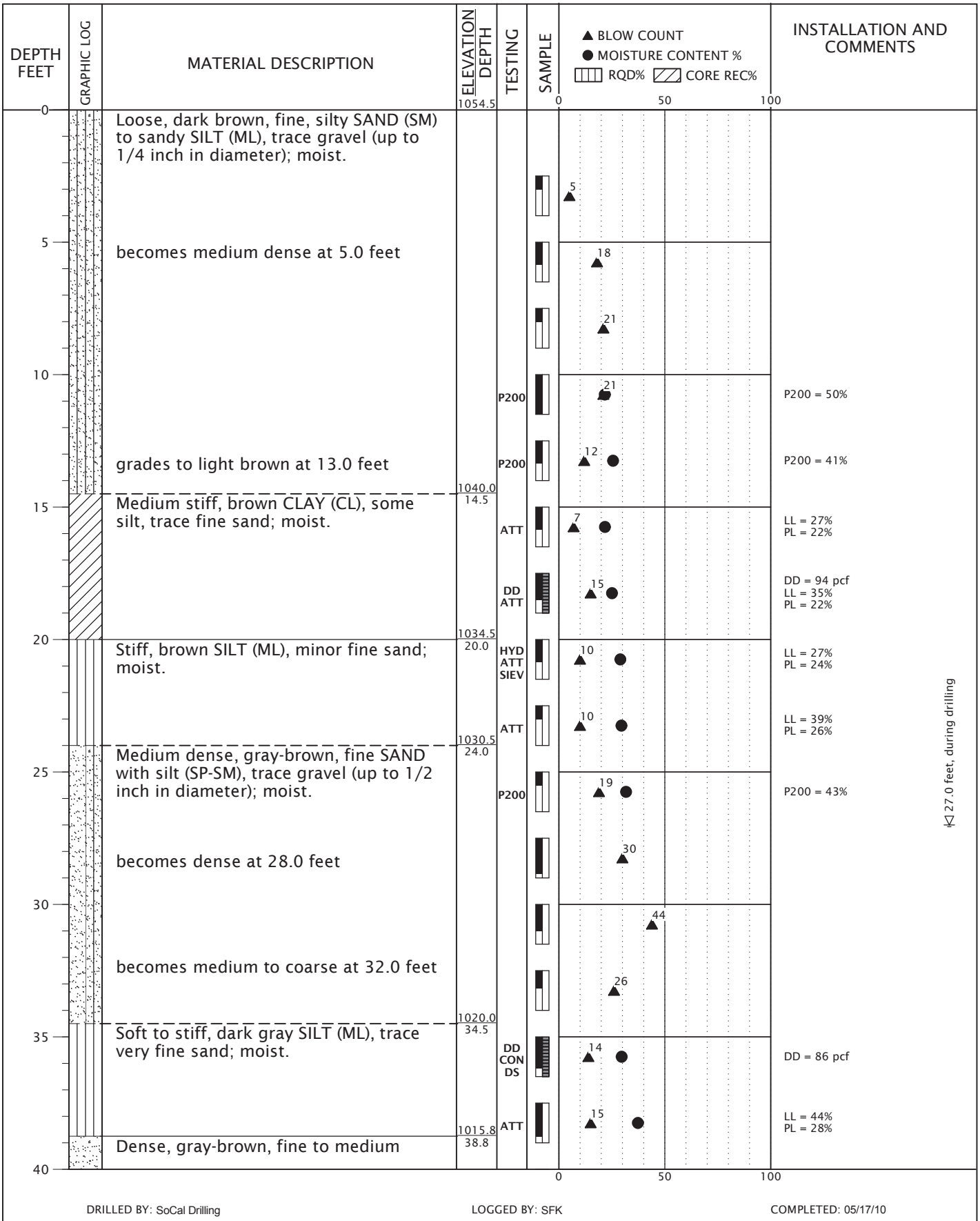
Secondary granular components or other materials such as organics, man-made debris, etc.

Percent	Silt and Clay In: Fine-Grained Soils	Silt and Clay In: Coarse-Grained Soils	Percent	Sand and Gravel In: Fine-Grained Soils	Sand and Gravel In: Coarse-Grained Soils
< 5	trace	trace	< 5	trace	trace
5 – 12	minor	with	5 – 15	minor	minor
> 12	some	silty/clayey	15 – 30	with	with
			> 30	sandy/gravelly	sandy/gravelly

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SOIL CLASSIFICATION SYSTEM

TABLE A-2



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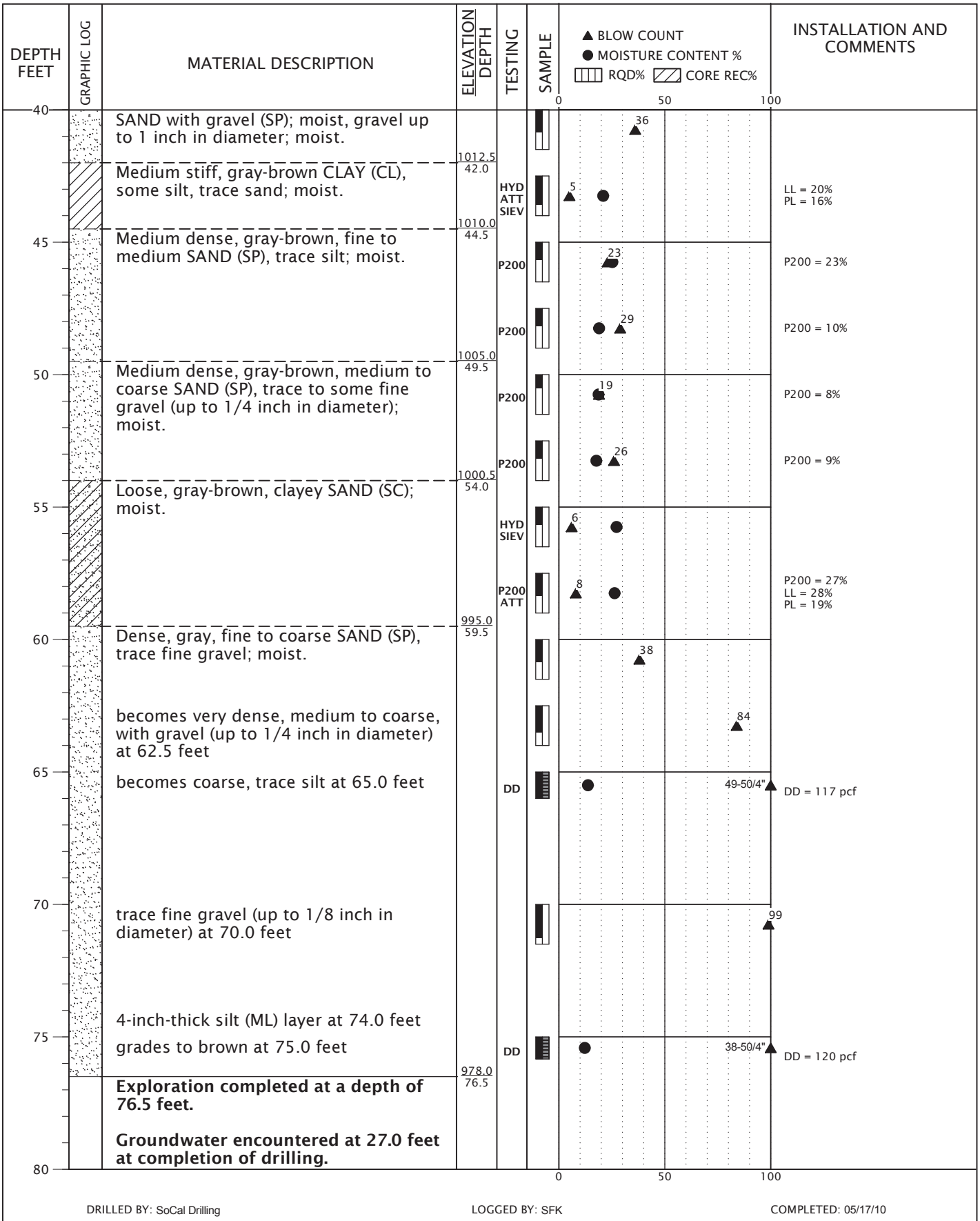
TURNERCONS-1-02

BORING B-1

AUGUST 2010

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-1



DRILLED BY: SoCal Drilling

LOGGED BY: SFK

COMPLETED: 05/17/10

BORING METHOD: mud rotary (see report text)

BORING BIT DIAMETER: 4 7/8-inch

BORING LOG TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/12/10:KT

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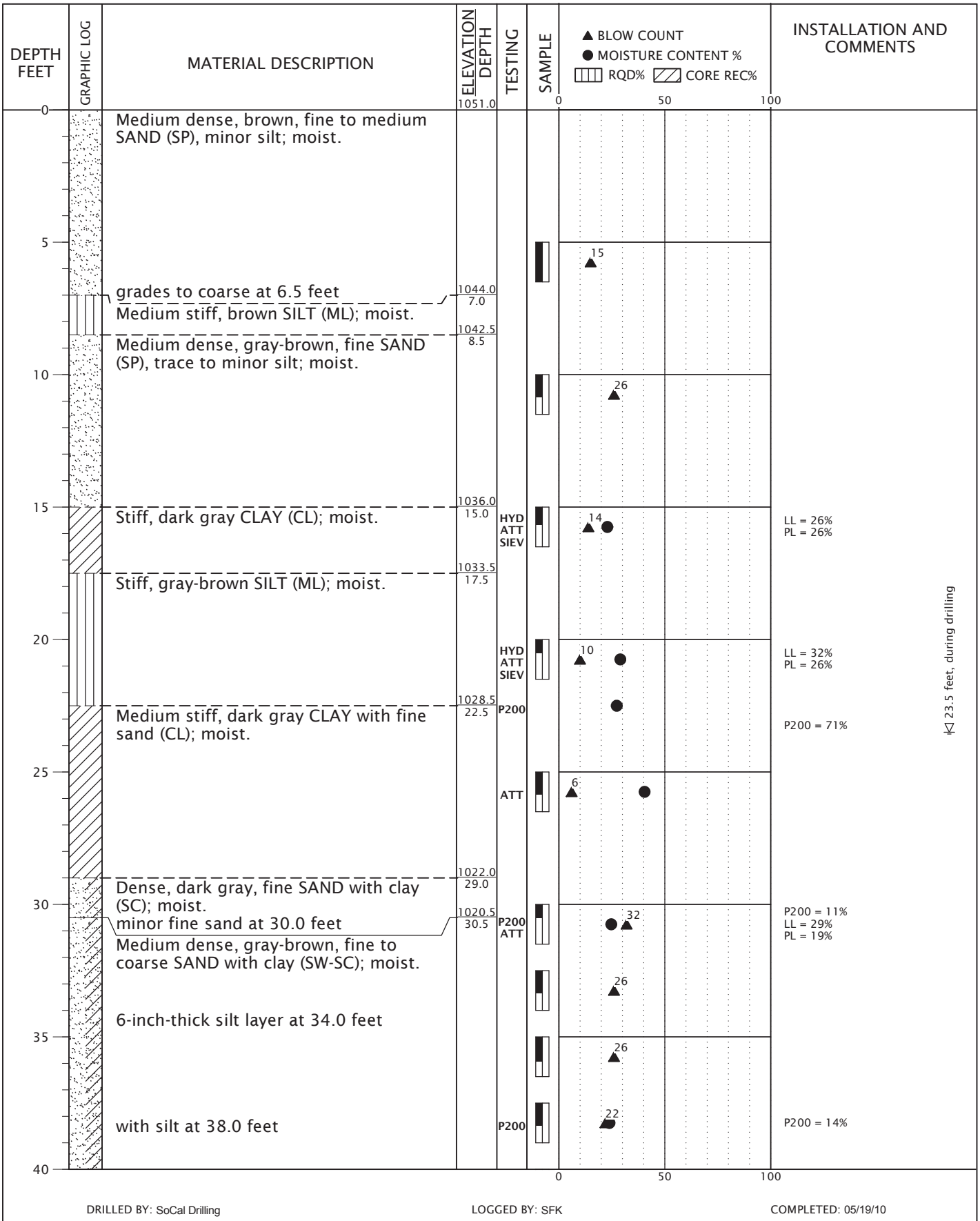
TURNERCONS-1-02

BORING B-1
(continued)

AUGUST 2010

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-1



BORING LOG TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/12/10:KT

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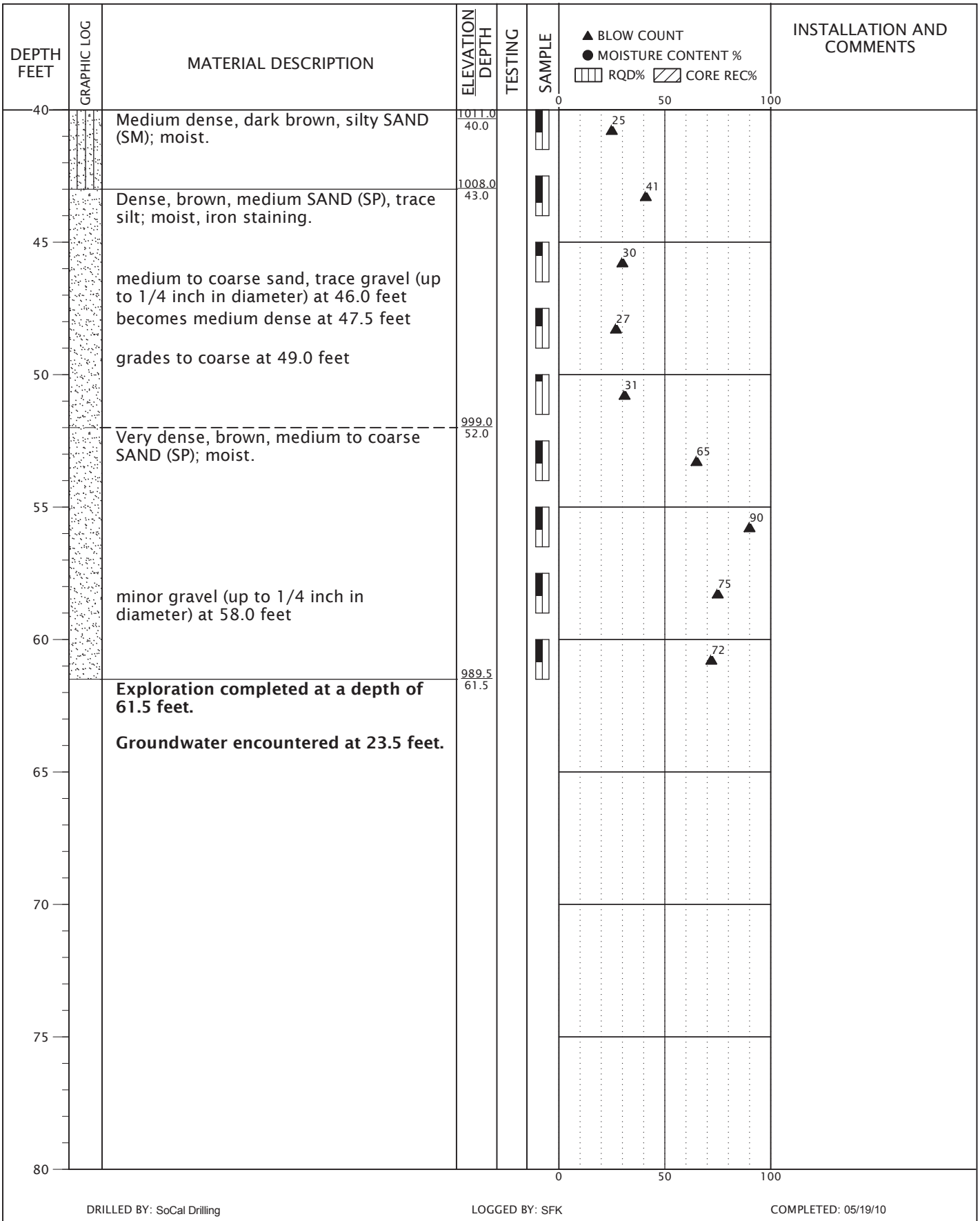
TURNERCONS-1-02

BORING B-1A

AUGUST 2010

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TEMECULA, CA

FIGURE A-2



BORING LOG TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/12/10:KT

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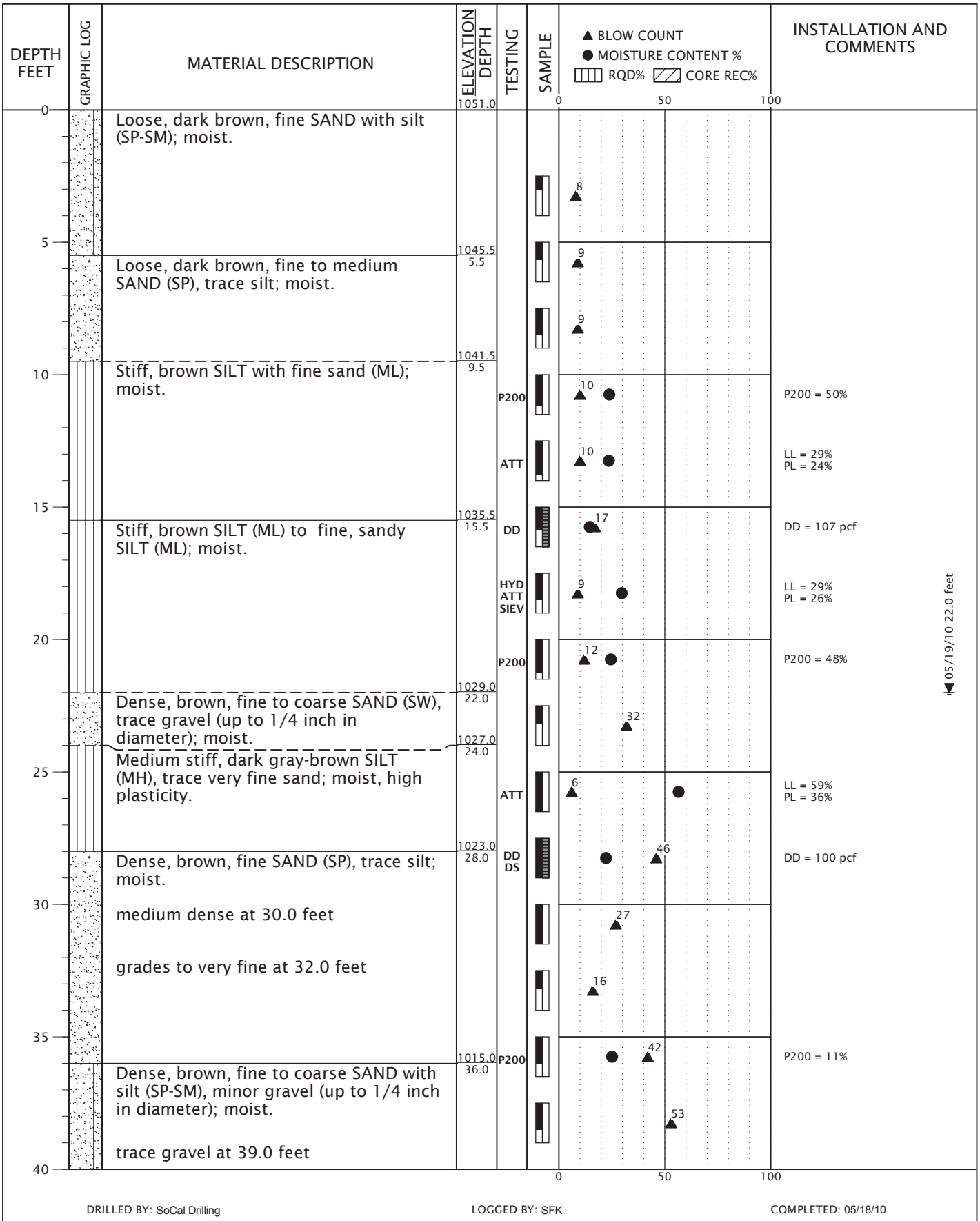
TURNERCONS-1-02

BORING B-1A
(continued)

AUGUST 2010

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-2



DRILLED BY: SoCal Drilling

LOGGED BY: SFK

COMPLETED: 05/18/10

BORING METHOD: mud rotary (see report text)

BORING BIT DIAMETER: 4 7/8-inch

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TURNERCONS-1-02

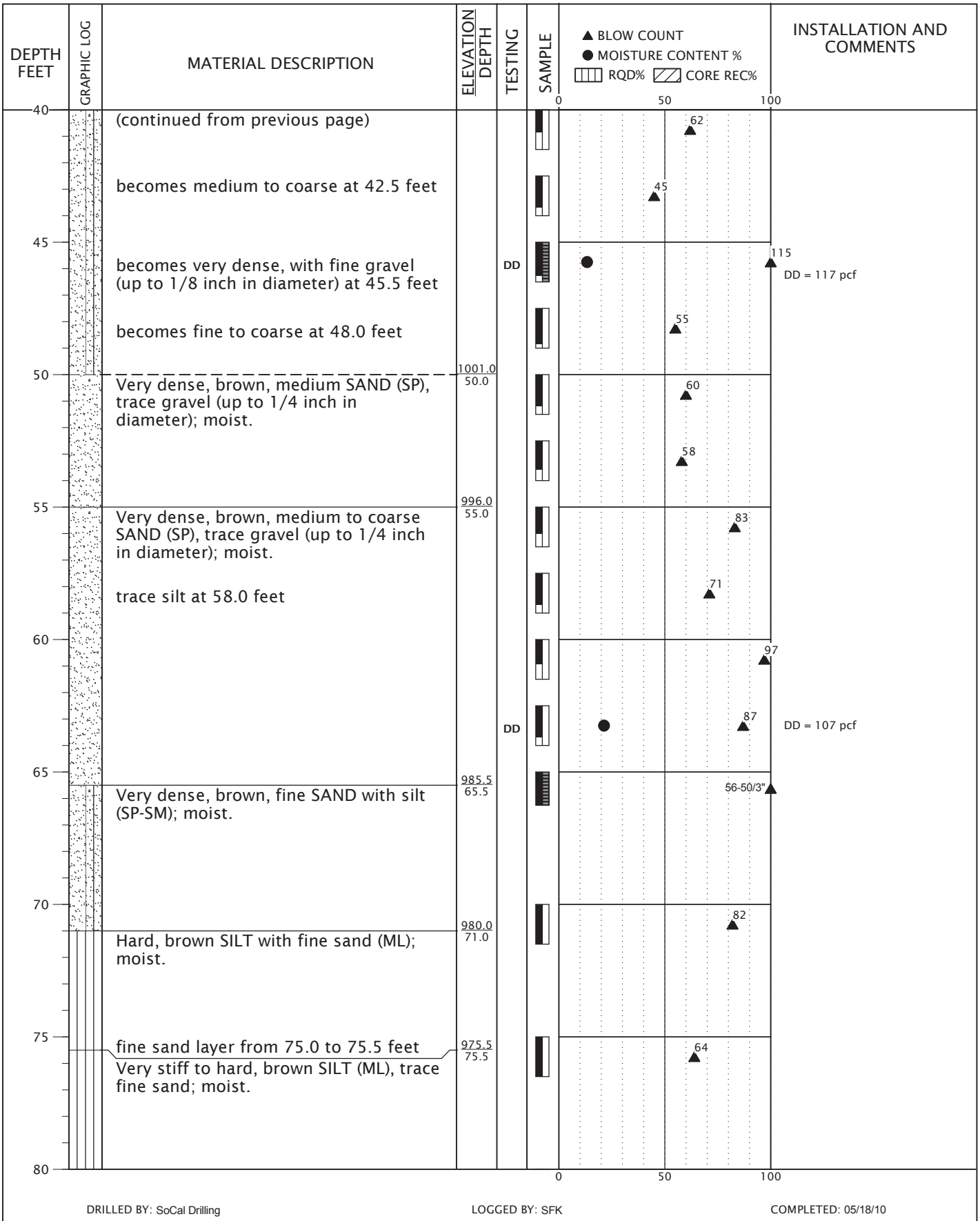
BORING B-2

AUGUST 2010

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-3

BORING LOG TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/12/10:KT



BORING LOG TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/12/10:KT

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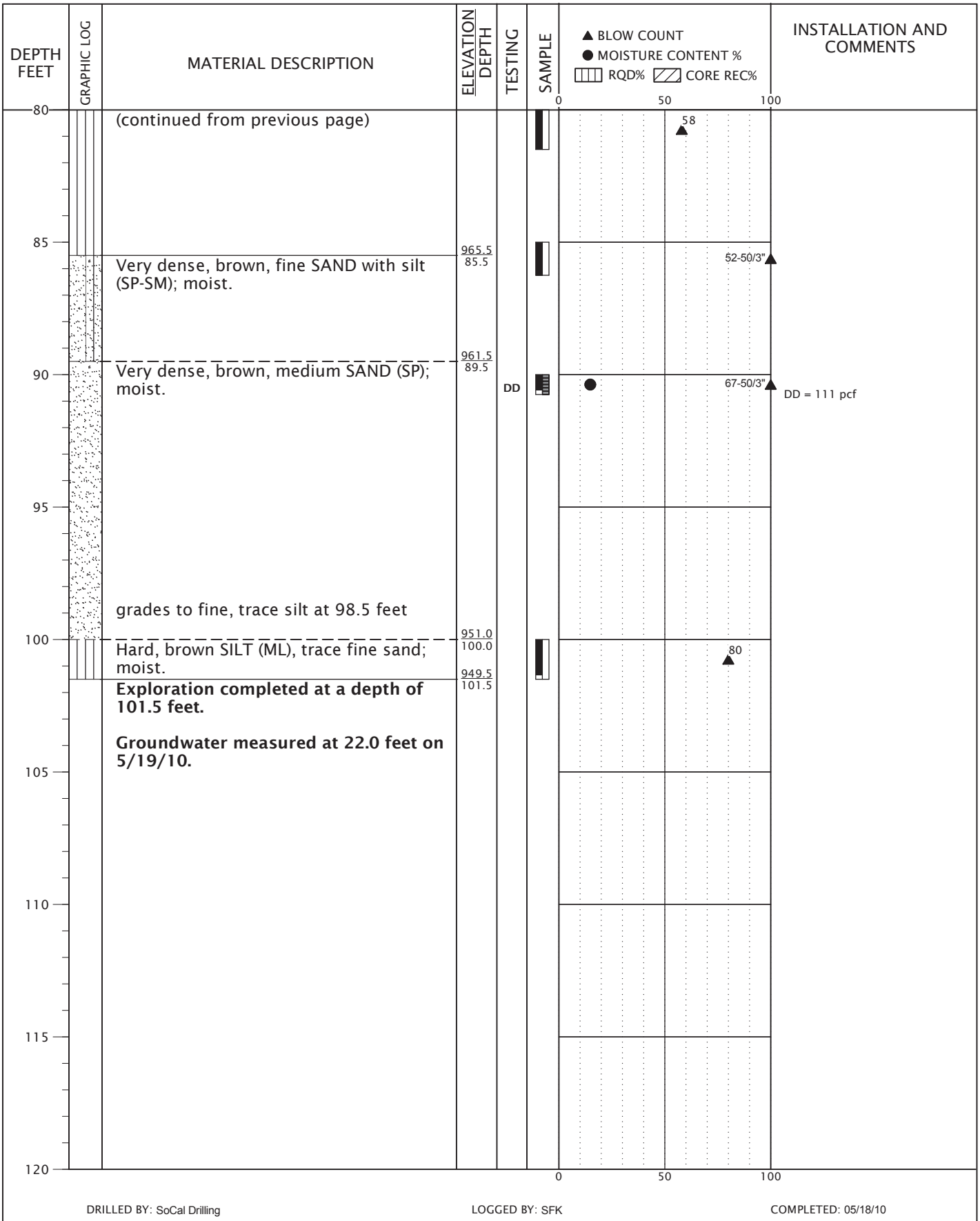
TURNERCONS-1-02

BORING B-2
(continued)

AUGUST 2010

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-3



DRILLED BY: SoCal Drilling | LOGGED BY: SFK | COMPLETED: 05/18/10

BORING METHOD: mud rotary (see report text) | BORING BIT DIAMETER: 4 7/8-inch

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TURNERCONS-1-02

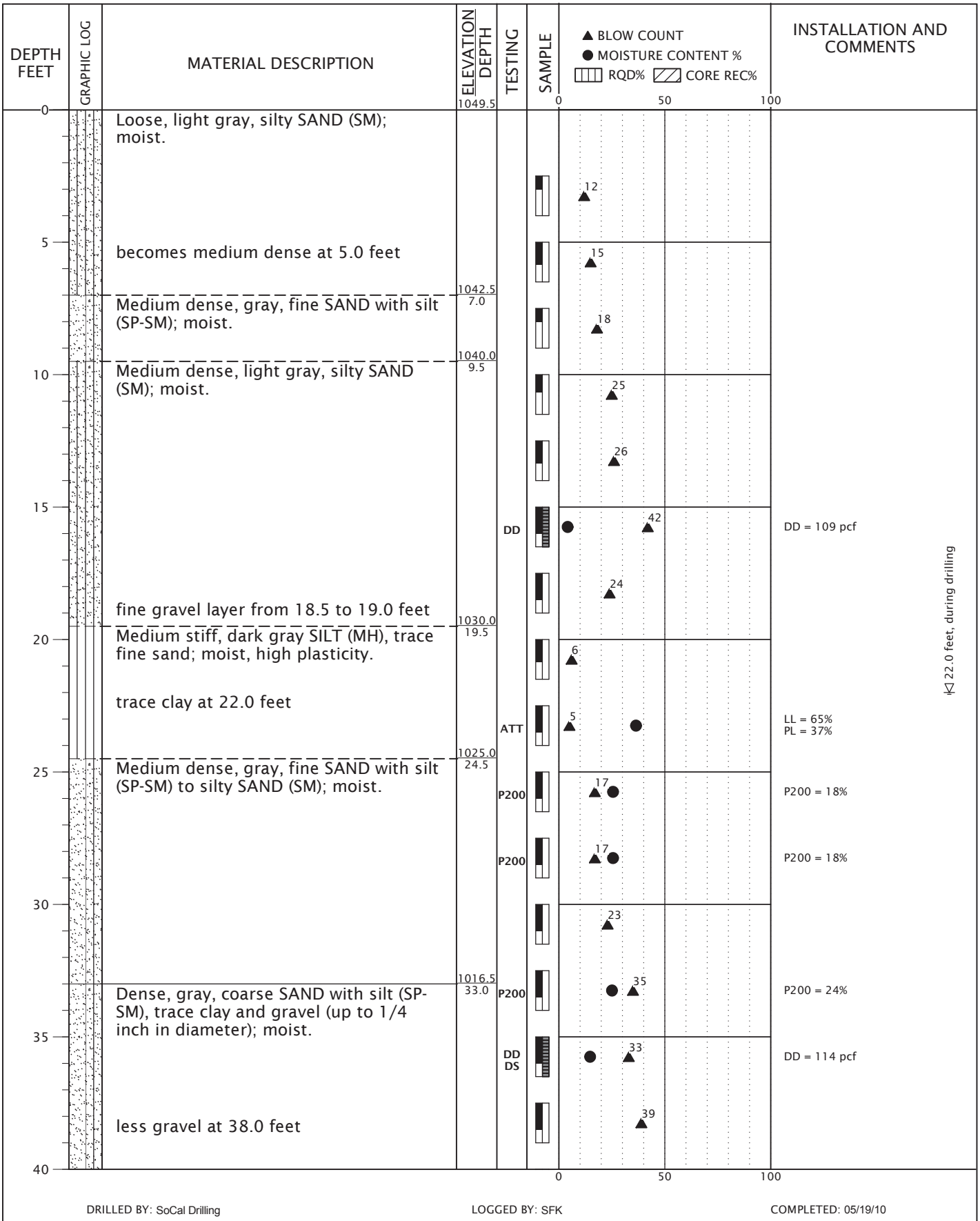
BORING B-2
(continued)

AUGUST 2010

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-3

BORING LOG TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/12/10:KT



DRILLED BY: SoCal Drilling

LOGGED BY: SFK

COMPLETED: 05/19/10

BORING METHOD: mud rotary (see report text)

BORING BIT DIAMETER: 4 7/8-inch

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TURNERCONS-1-02

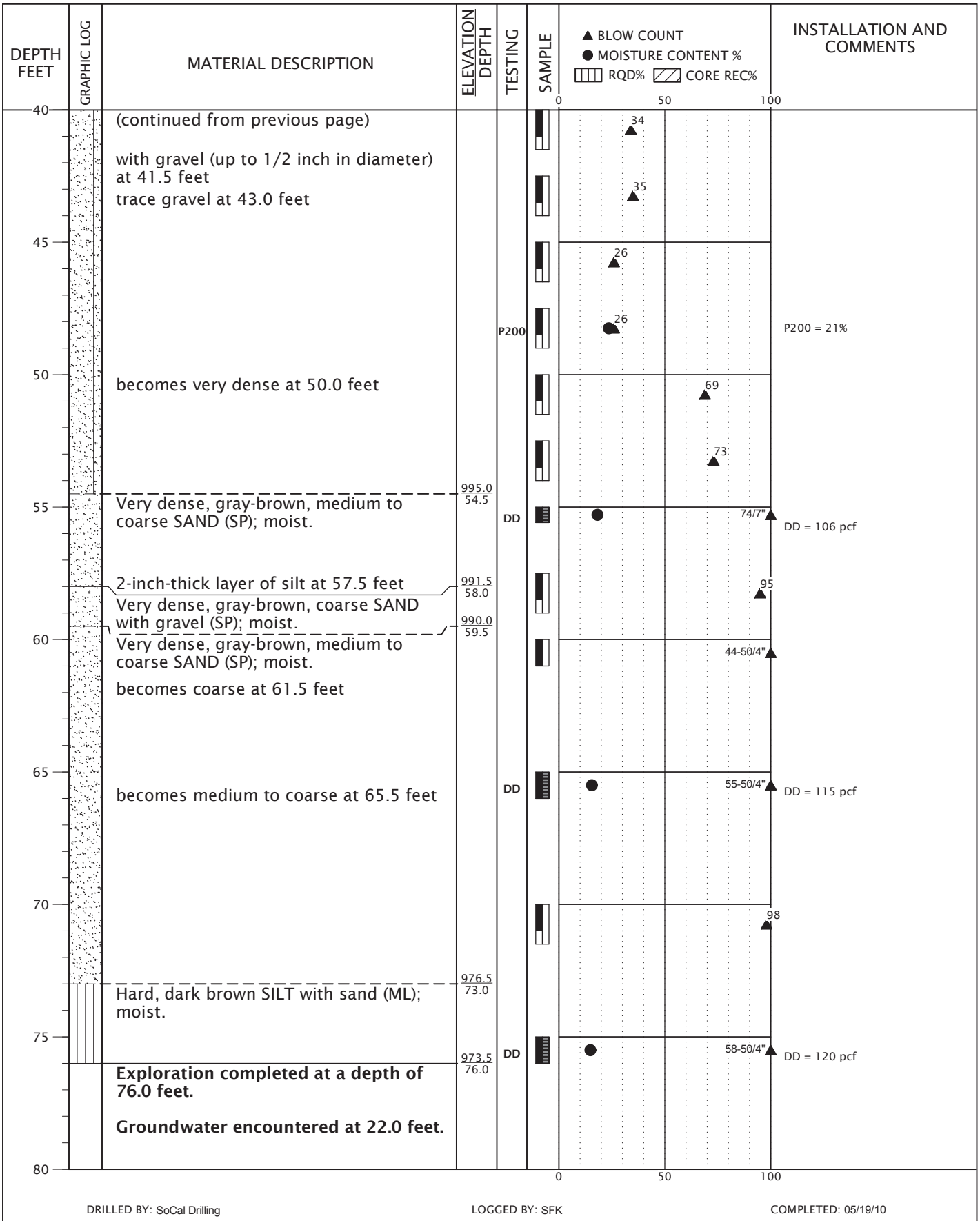
BORING B-3

AUGUST 2010

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-4

BORING LOG TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/12/10:KT



DRILLED BY: SoCal Drilling

LOGGED BY: SFK

COMPLETED: 05/19/10

BORING METHOD: mud rotary (see report text)

BORING BIT DIAMETER: 4 7/8-inch

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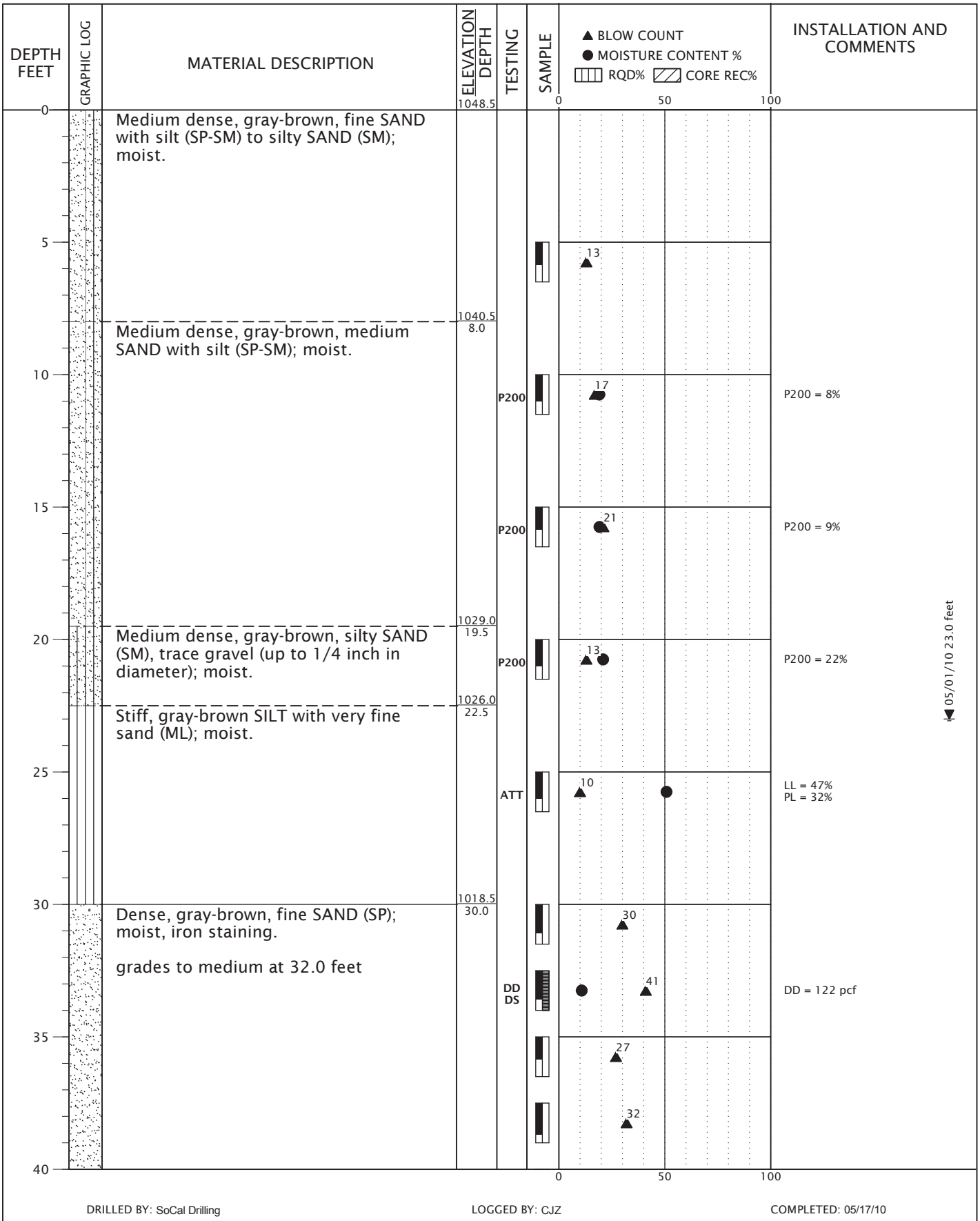
BORING B-3
(continued)

AUGUST 2010

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-4

BORING LOG TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/12/10:KT



DRILLED BY: SoCal Drilling

LOGGED BY: CJZ

COMPLETED: 05/17/10

BORING METHOD: mud rotary (see report text)

BORING BIT DIAMETER: 4 7/8-inch

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TURNERCONS-1-02

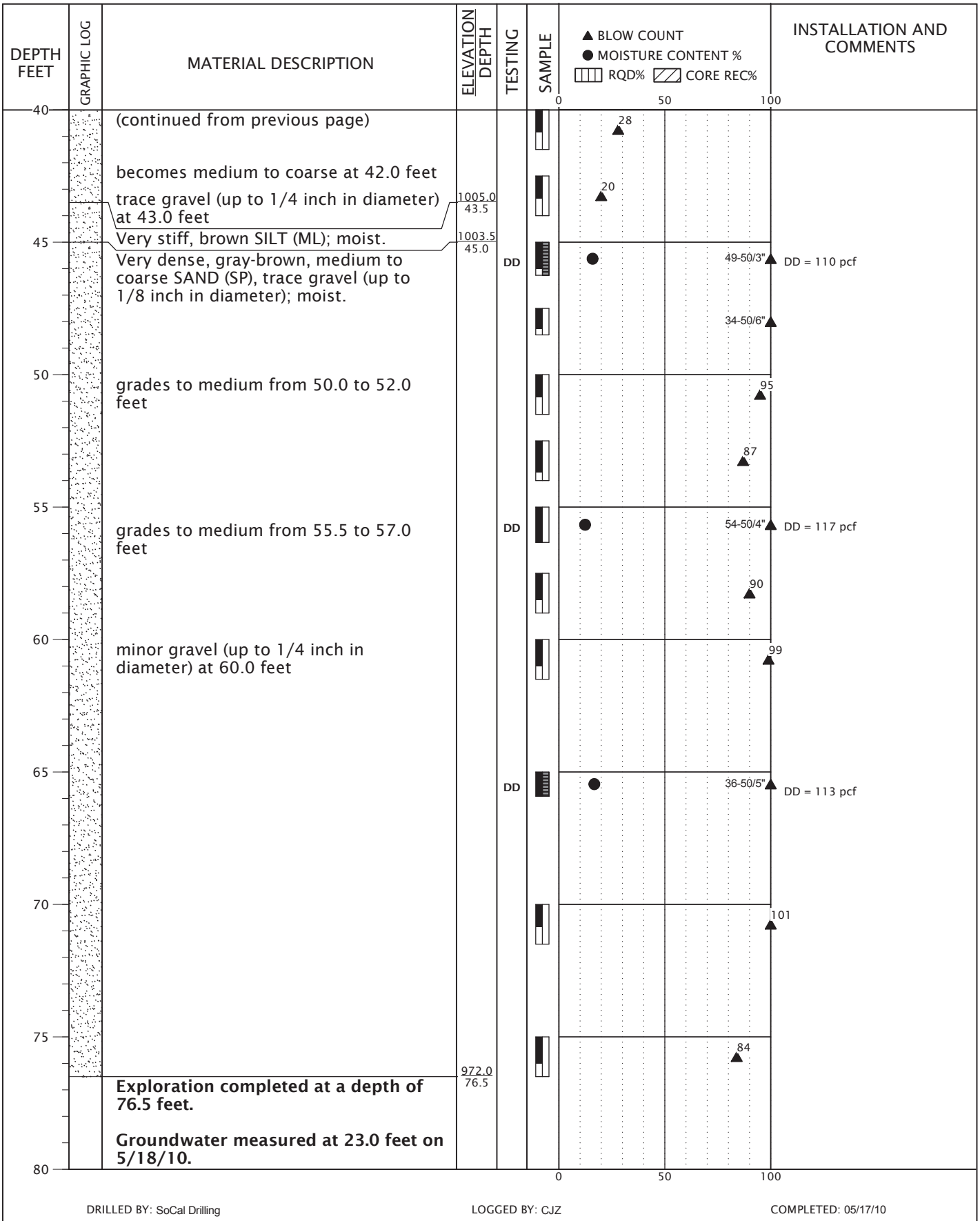
BORING B-4

AUGUST 2010

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-5

BORING LOG TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/12/10:KT



DRILLED BY: SoCal Drilling

LOGGED BY: CJZ

COMPLETED: 05/17/10

BORING METHOD: mud rotary (see report text)

BORING BIT DIAMETER: 4 7/8-inch

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TURNERCONS-1-02

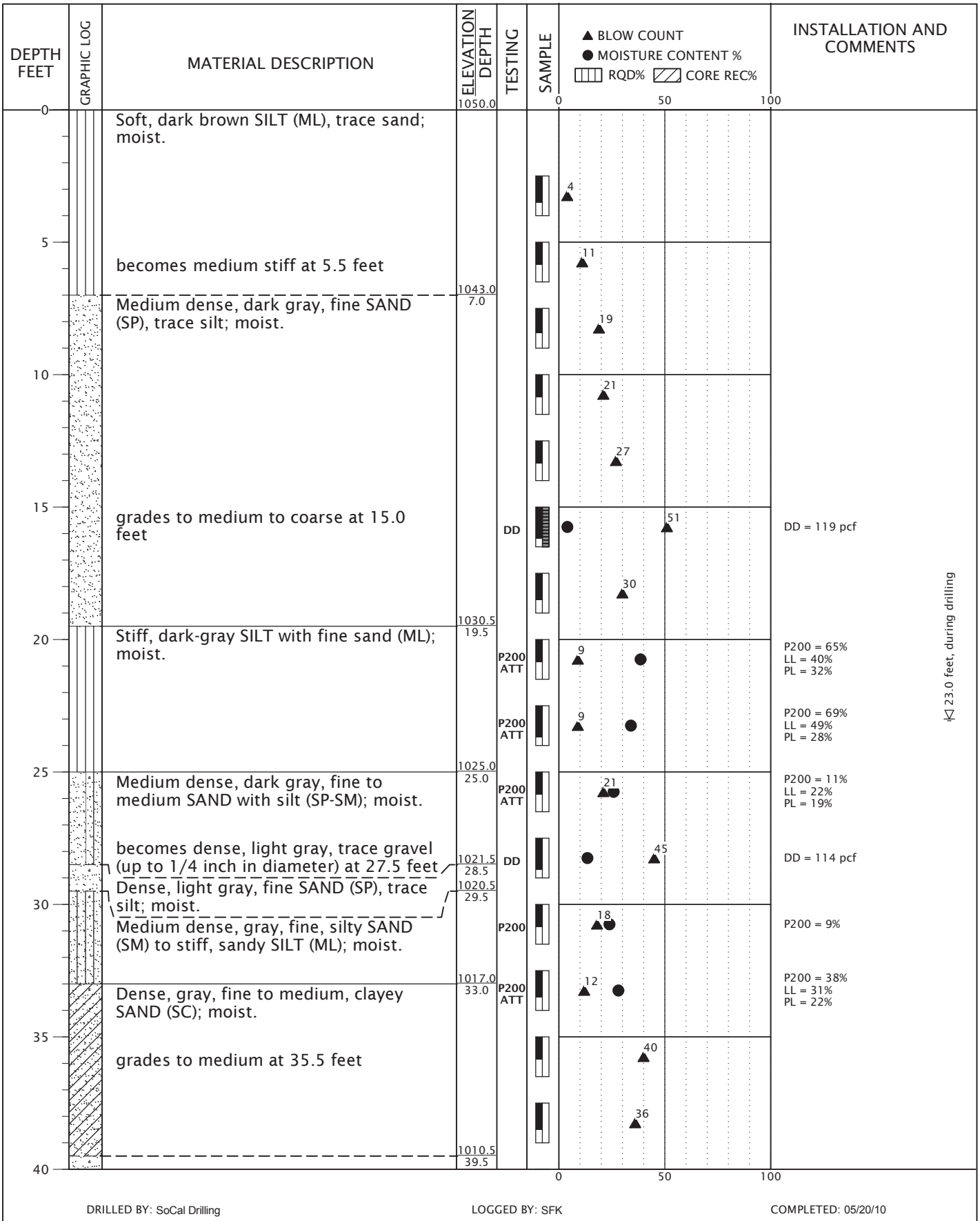
BORING B-4
(continued)

AUGUST 2010

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-5

BORING LOG TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/12/10:KT



DRILLED BY: SoCal Drilling

LOGGED BY: SFK

COMPLETED: 05/20/10

BORING METHOD: mud rotary (see report text)

BORING BIT DIAMETER: 4 7/8-inch

BORING LOG TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/12/10:KT

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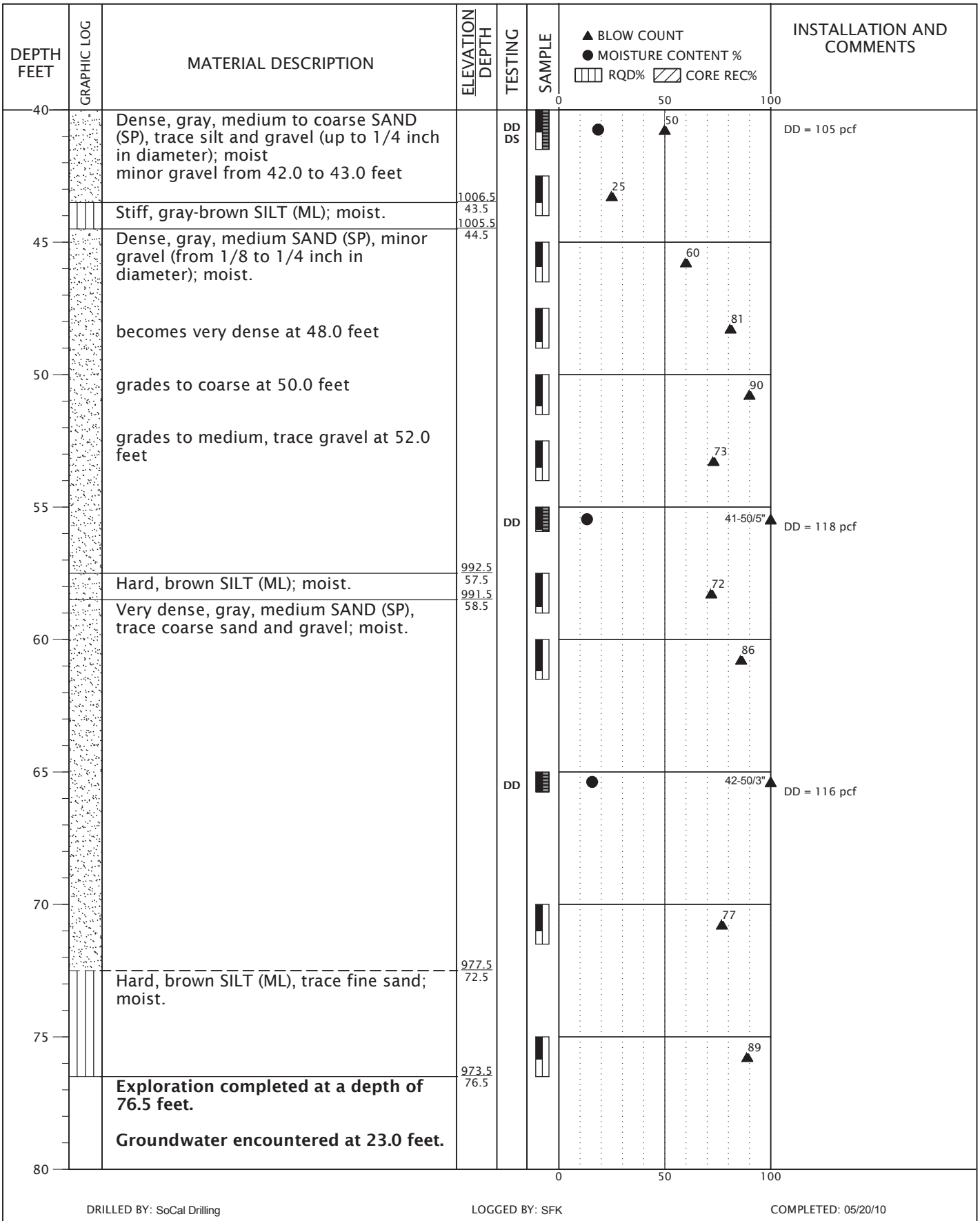
TURNERCONS-1-02

BORING B-5

AUGUST 2010

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-6



DRILLED BY: SoCal Drilling

LOGGED BY: SFK

COMPLETED: 05/20/10

BORING METHOD: mud rotary (see report text)

BORING BIT DIAMETER: 4 7/8-inch

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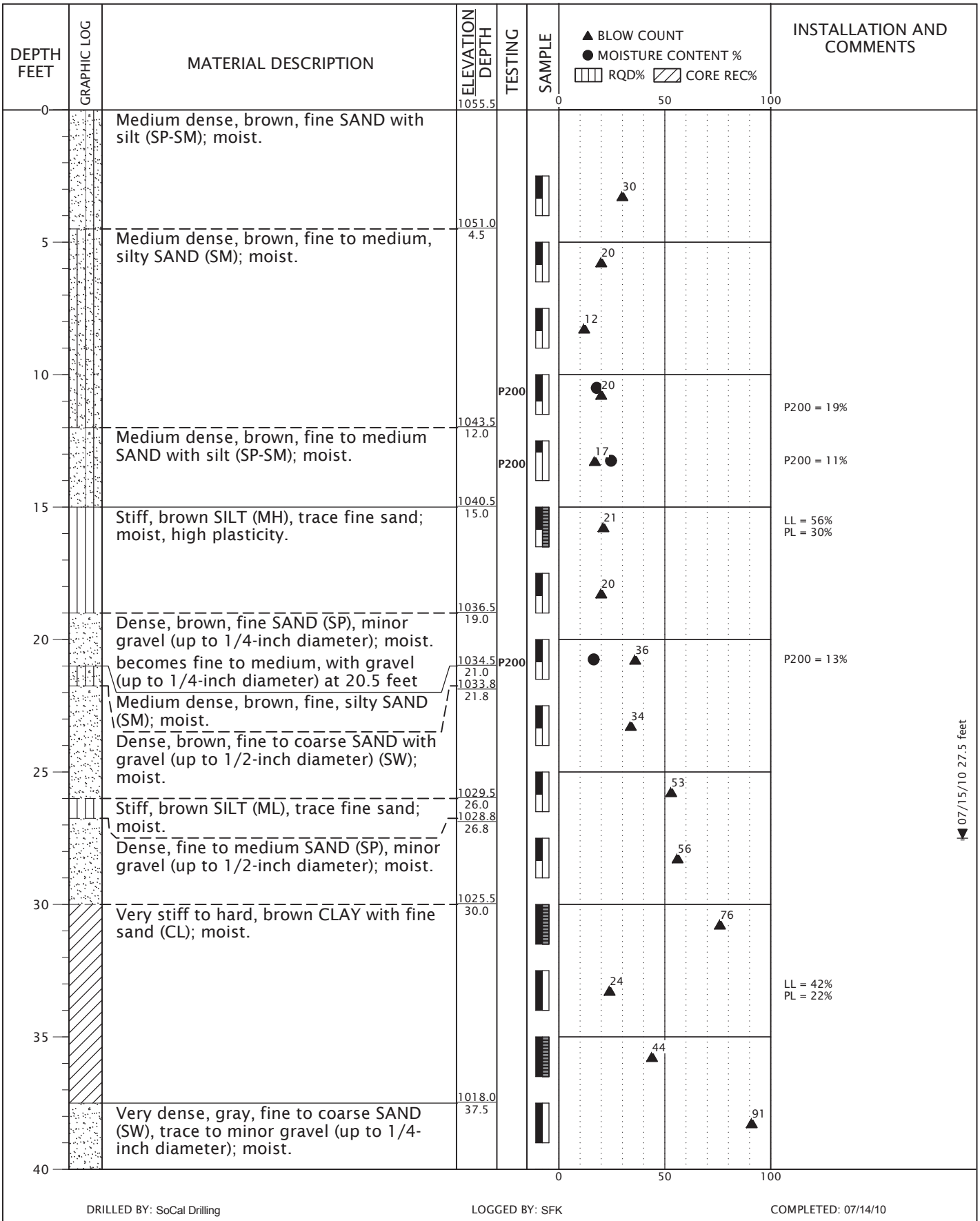
BORING B-5
(continued)

AUGUST 2010

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-6

BORING LOG TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/12/10:KT



DRILLED BY: SoCal Drilling

LOGGED BY: SFK

COMPLETED: 07/14/10

BORING METHOD: mud rotary (see report text)

BORING BIT DIAMETER: 4 7/8-inch

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TURNERCONS-1-02

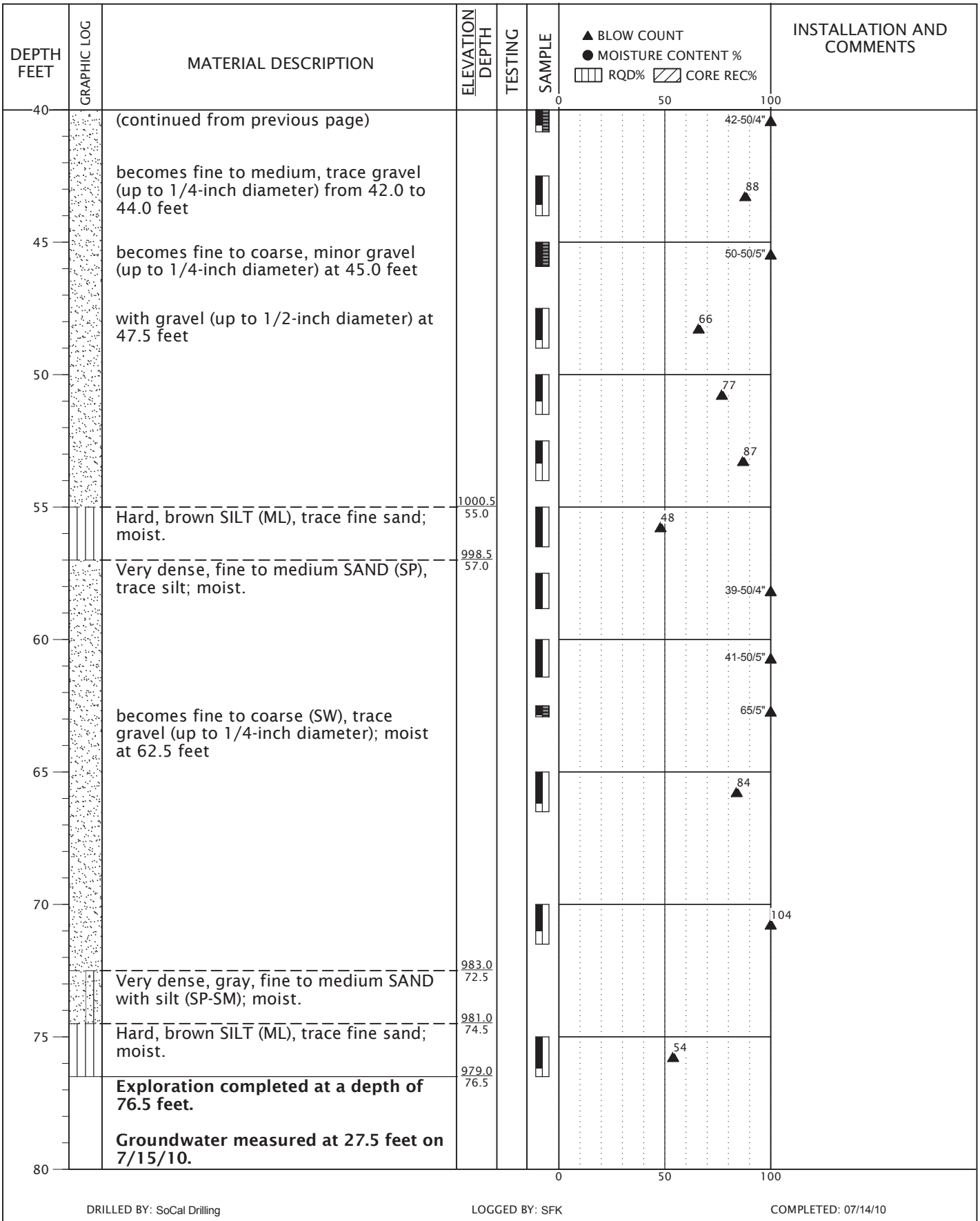
BORING B-6

AUGUST 2010

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-7

BORING LOG TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/12/10:KT



DRILLED BY: SoCal Drilling | LOGGED BY: SFK | COMPLETED: 07/14/10

BORING METHOD: mud rotary (see report text) | BORING BIT DIAMETER: 4 7/8-inch

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TURNERCONS-1-02

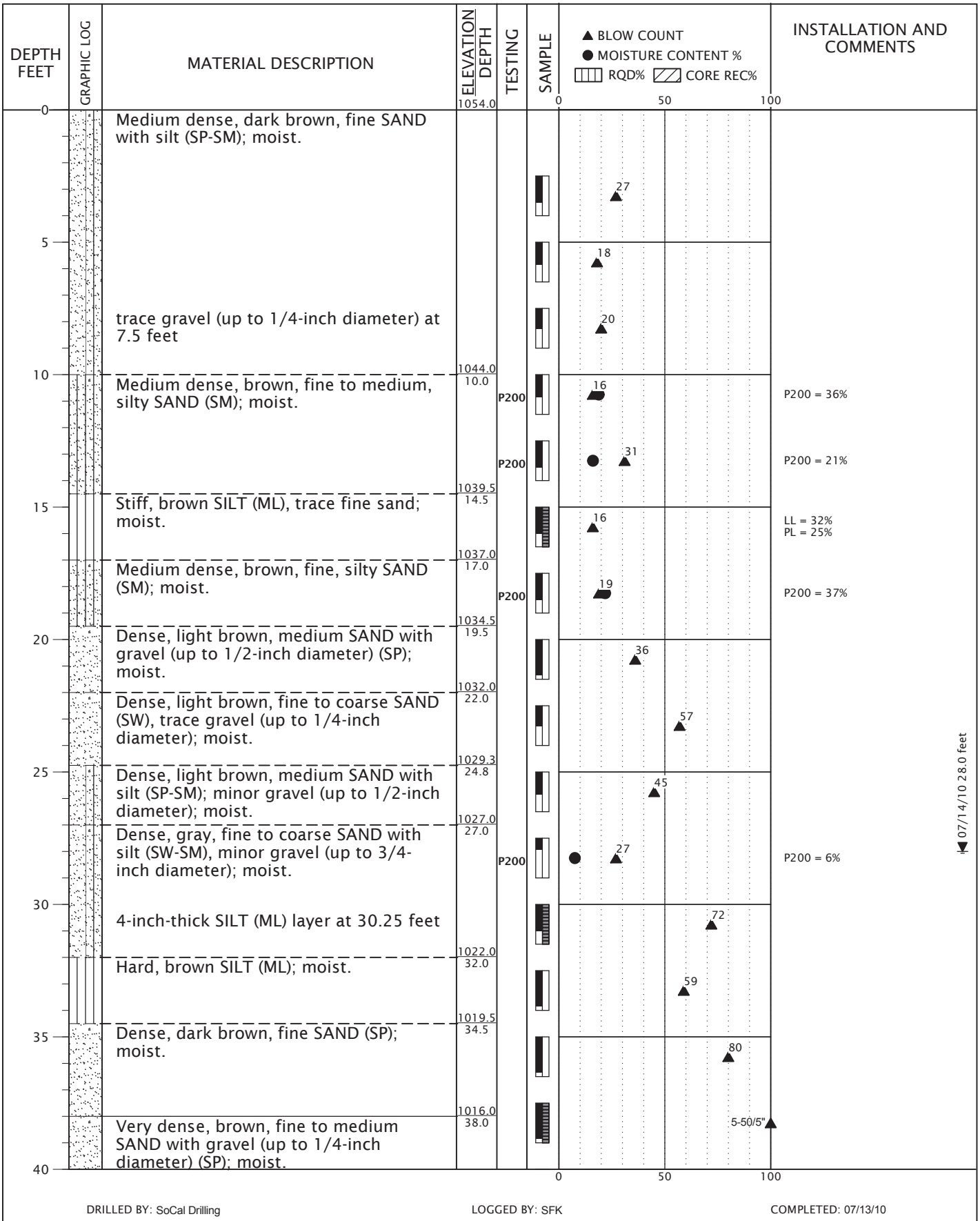
BORING B-6
(continued)

AUGUST 2010

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-7

BORING LOG TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/12/10:KT



BORING LOG TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/12/10:KT

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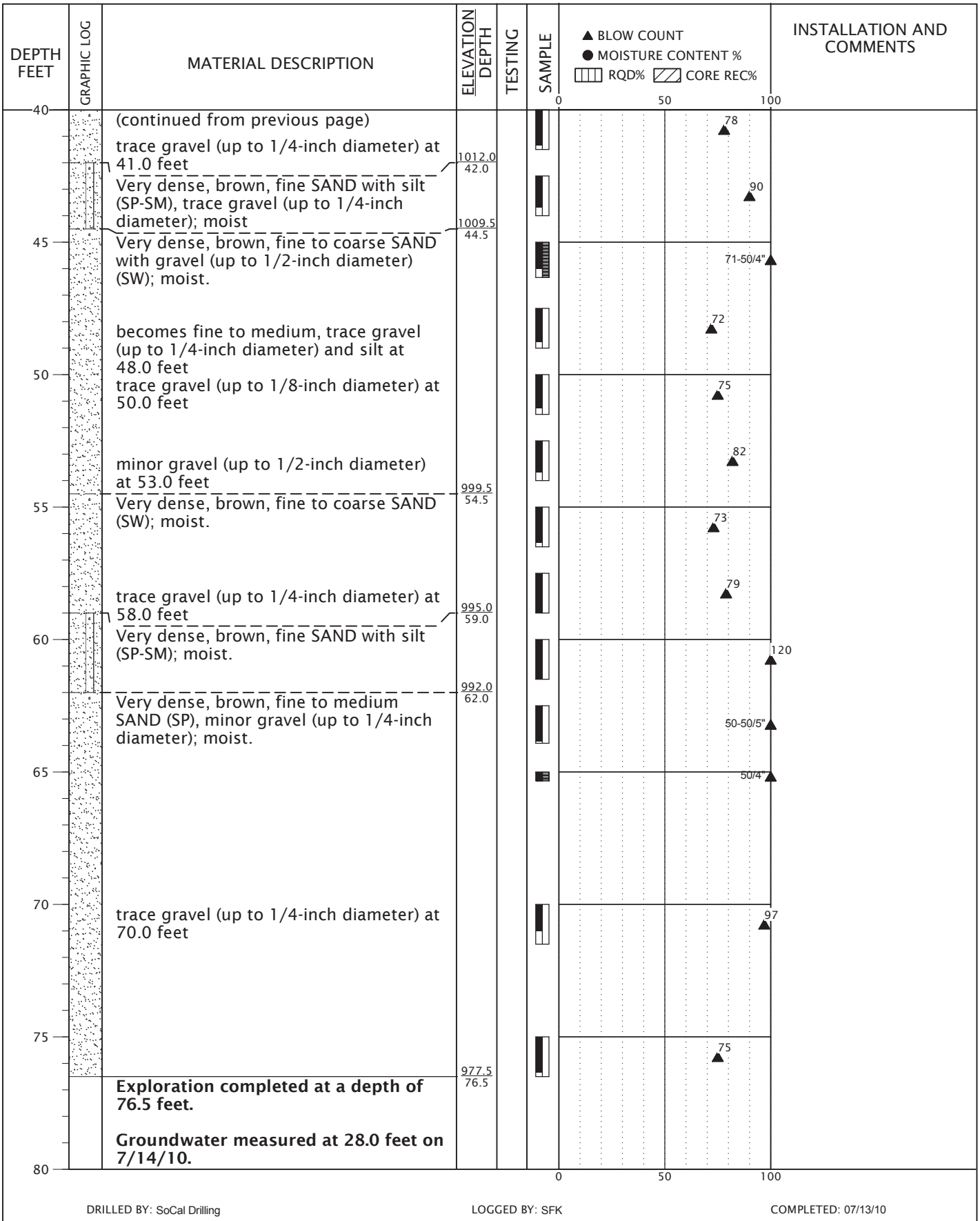
TURNERCONS-1-02

BORING B-7

AUGUST 2010

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-8



DRILLED BY: SoCal Drilling | LOGGED BY: SFK | COMPLETED: 07/13/10

BORING METHOD: mud rotary (see report text) | BORING BIT DIAMETER: 4 7/8-inch

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TURNERCONS-1-02

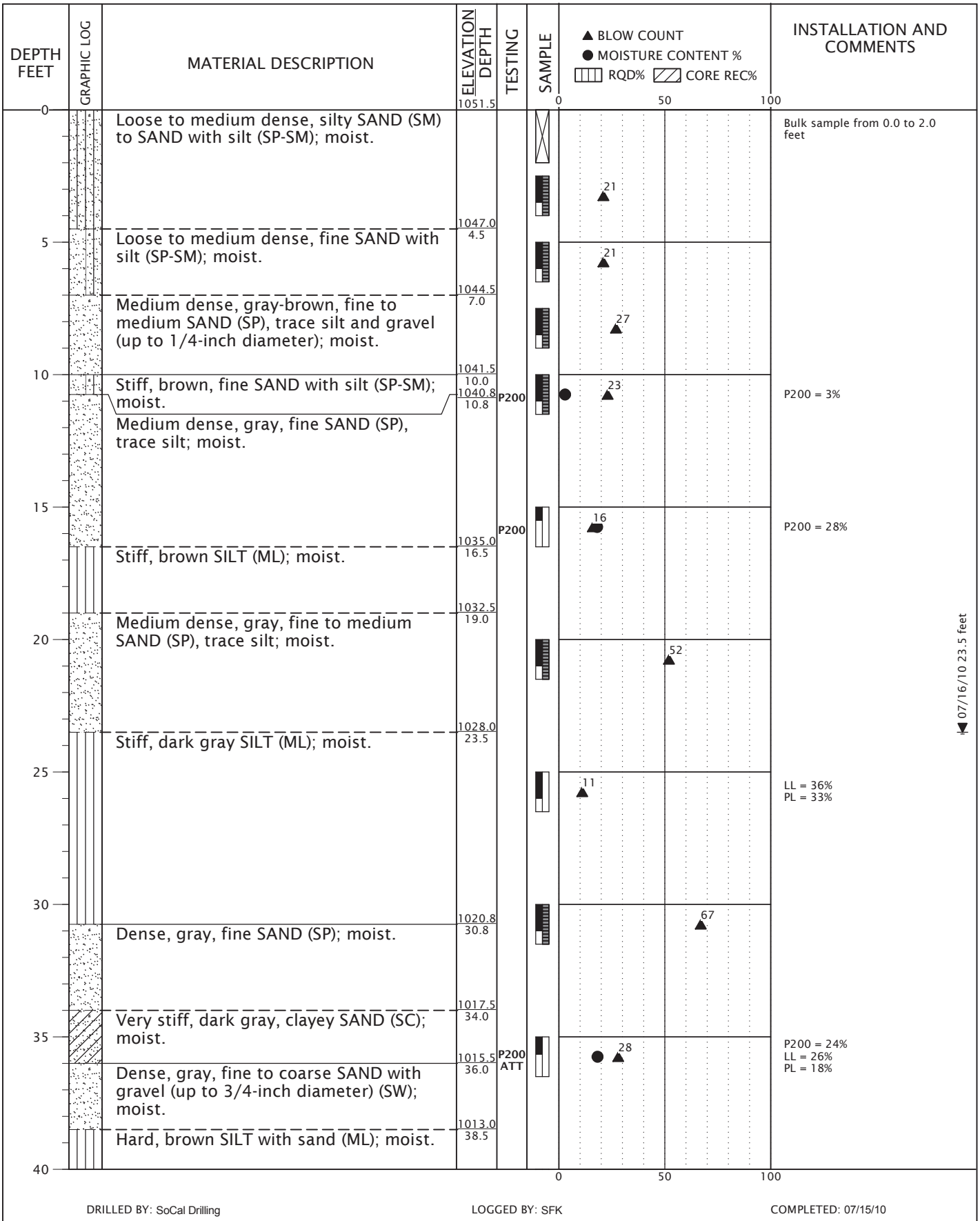
BORING B-7
(continued)

AUGUST 2010

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-8

BORING LOG TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/12/10:KT



BORING LOG TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/12/10:KT

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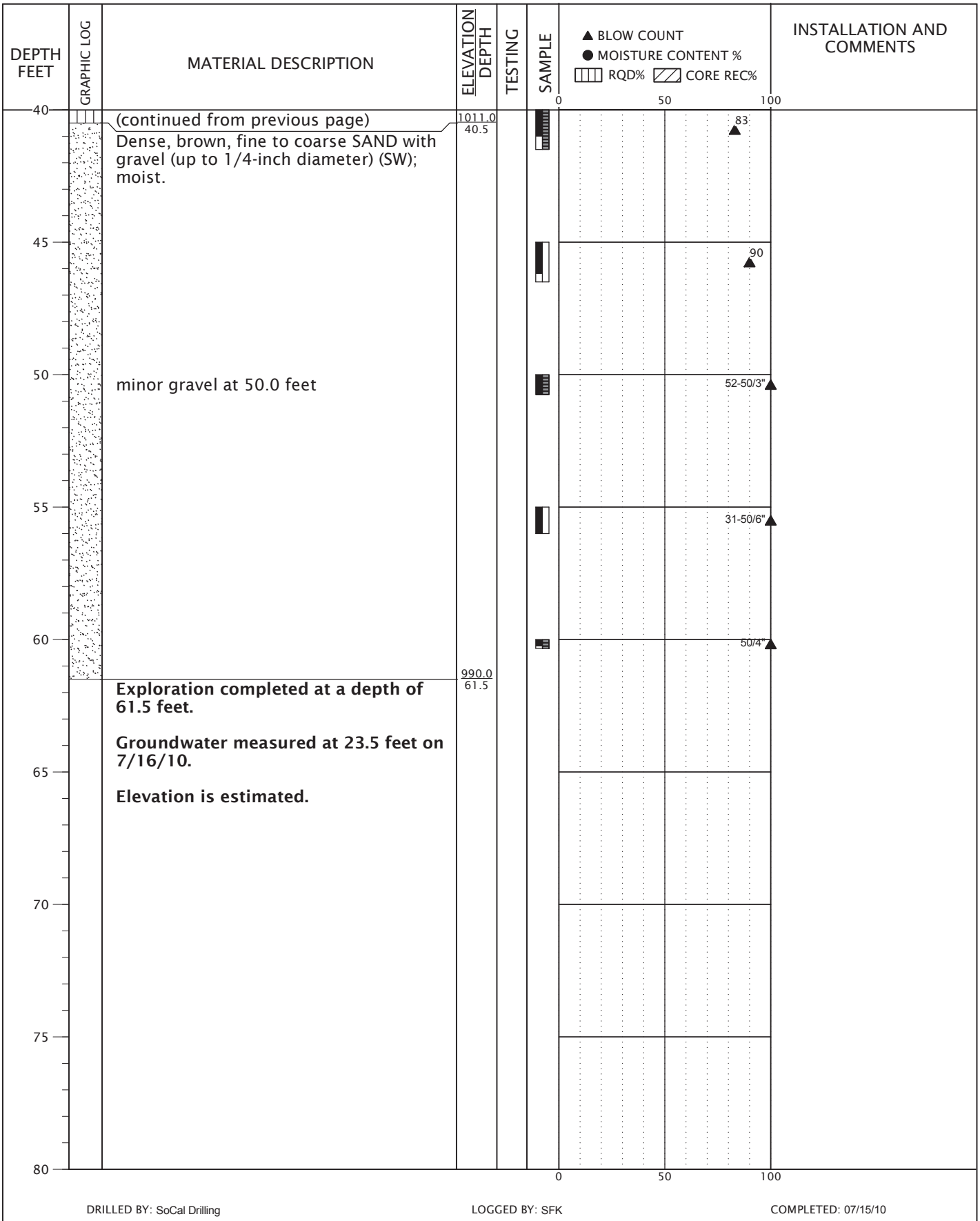
TURNERCONS-1-02

BORING B-8

AUGUST 2010

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-9



BORING LOG TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/12/10:KT

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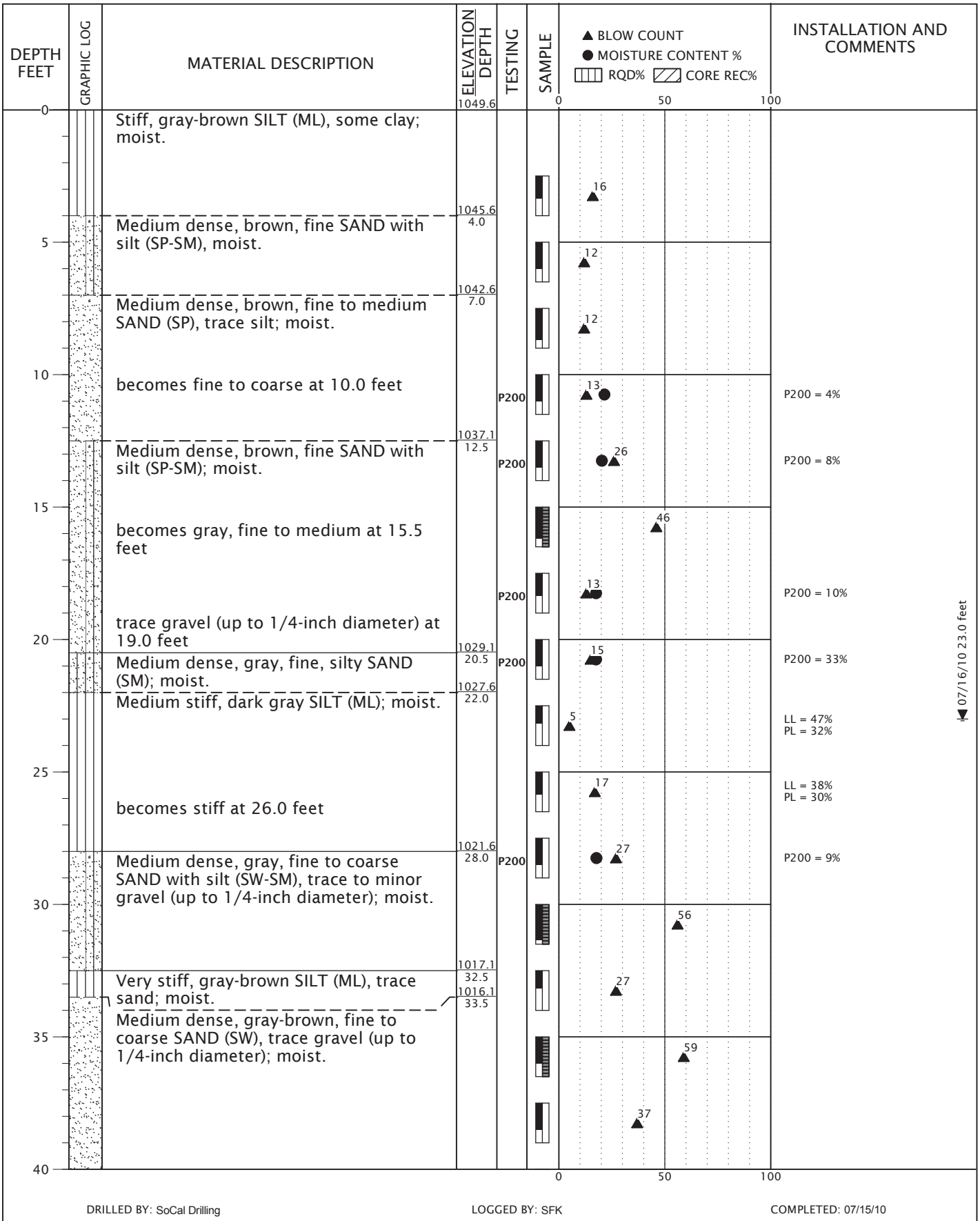
TURNERCONS-1-02

BORING B-8
(continued)

AUGUST 2010

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-9



BORING LOG TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/12/10:KT

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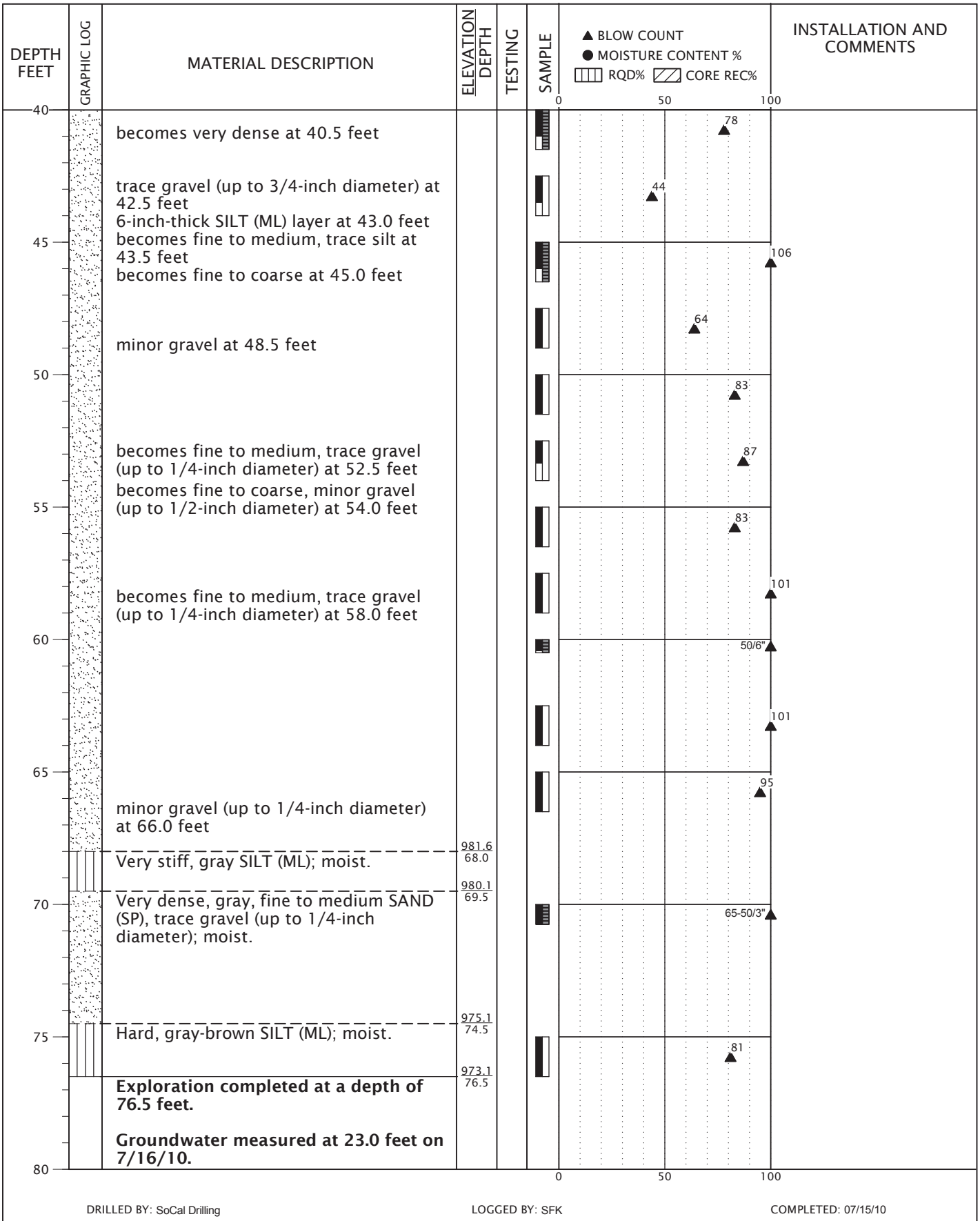
TURNERCONS-1-02

BORING B-9

AUGUST 2010

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-10



DRILLED BY: SoCal Drilling

LOGGED BY: SFK

COMPLETED: 07/15/10

BORING METHOD: mud rotary (see report text)

BORING BIT DIAMETER: 4 7/8-inch

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TURNERCONS-1-02

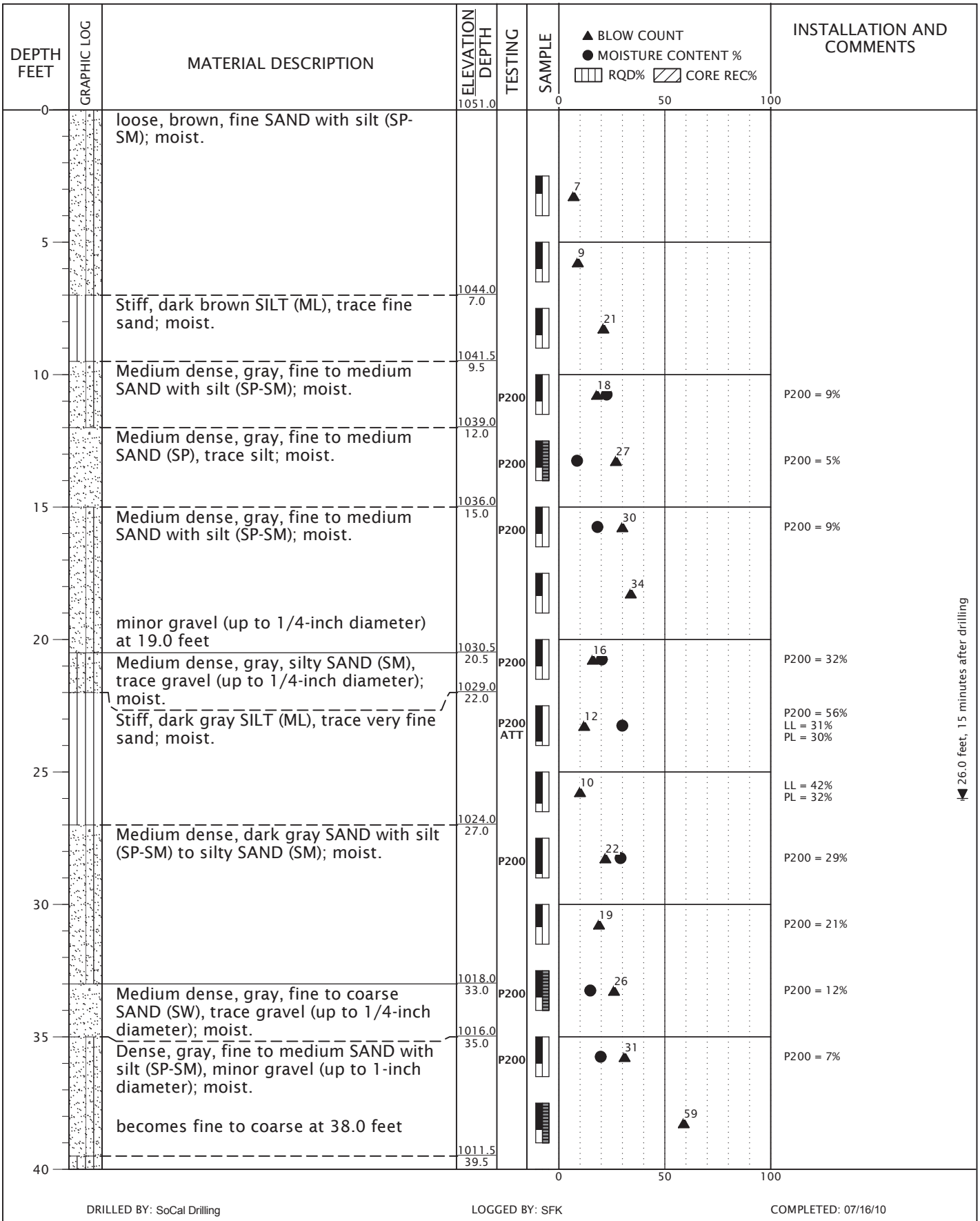
BORING B-9
(continued)

AUGUST 2010

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-10

BORING LOG TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/12/10:KT



DRILLED BY: SoCal Drilling

LOGGED BY: SFK

COMPLETED: 07/16/10

BORING METHOD: mud rotary (see report text)

BORING BIT DIAMETER: 4 7/8-inch

BORING LOG TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/12/10:KT

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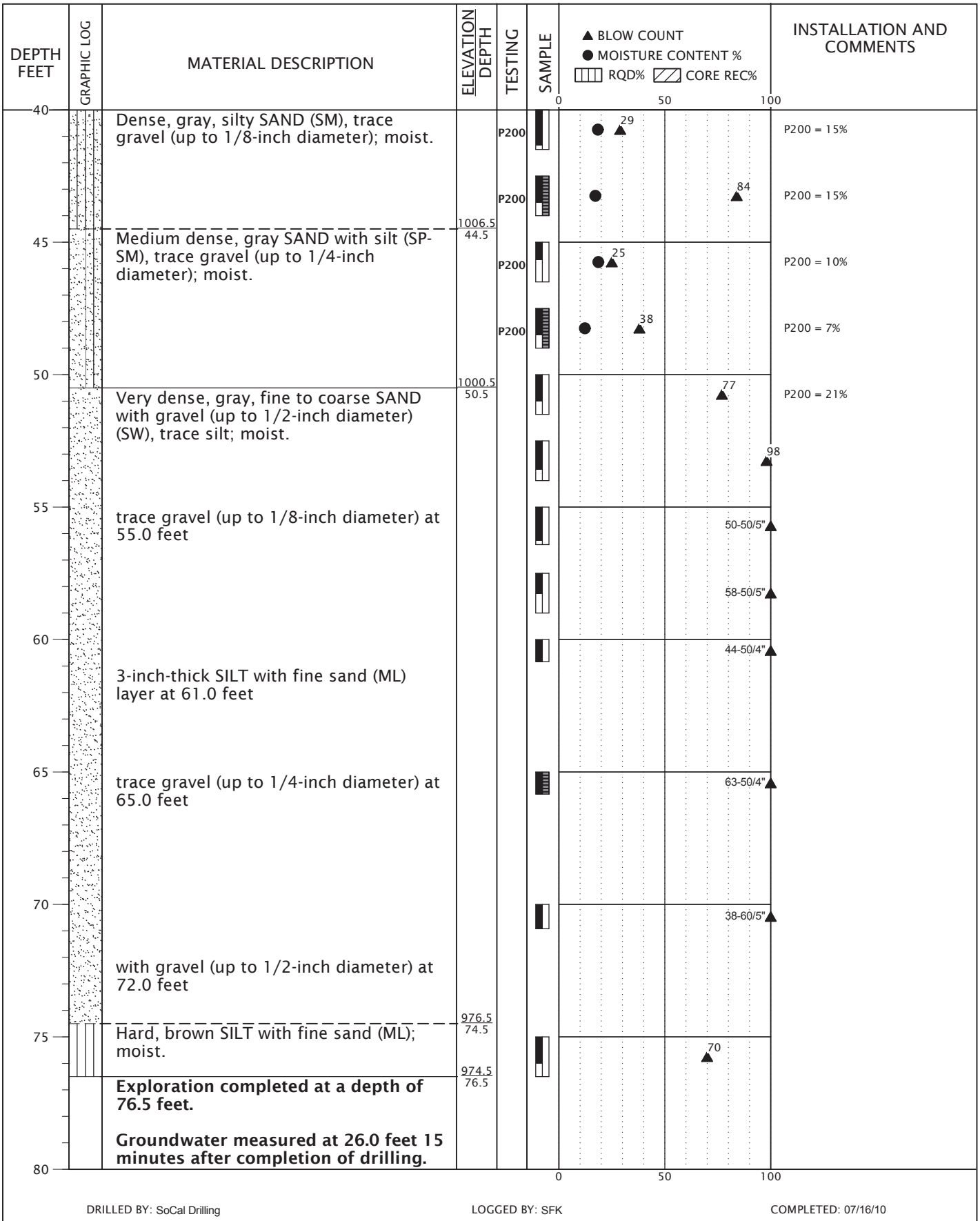
TURNERCONS-1-02

BORING B-10

AUGUST 2010

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-11



DRILLED BY: SoCal Drilling

LOGGED BY: SFK

COMPLETED: 07/16/10

BORING METHOD: mud rotary (see report text)

BORING BIT DIAMETER: 4 7/8-inch

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TURNERCONS-1-02

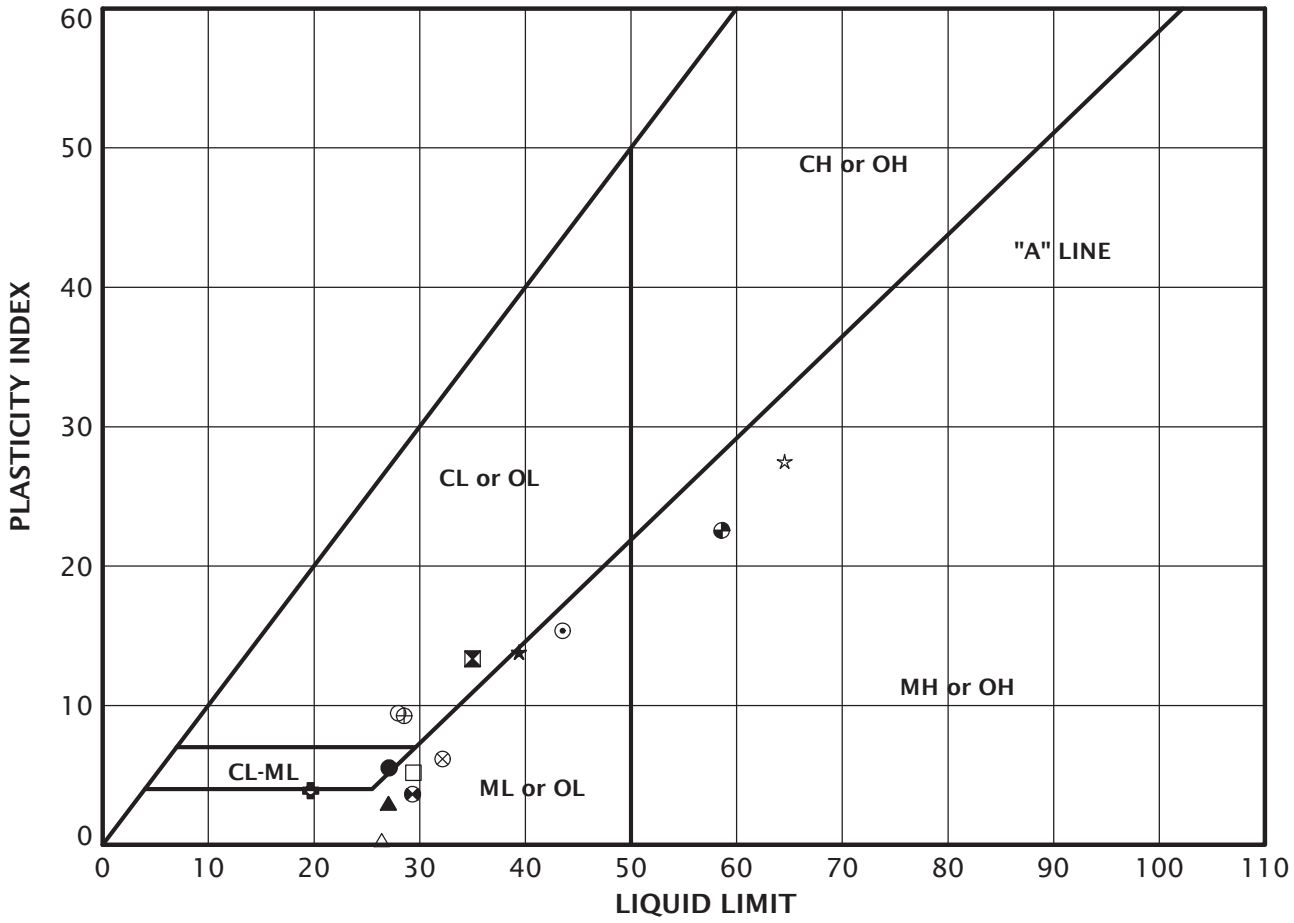
BORING B-10
(continued)

AUGUST 2010

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-11

BORING LOG TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/12/10:KT



KEY	EXPLORATION NUMBER	SAMPLE DEPTH (FEET)	MOISTURE CONTENT (PERCENT)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
●	B-1	15.0	22	27	22	5
⊠	B-1	17.5	26	35	22	13
▲	B-1	20.0	29	27	24	3
★	B-1	22.5	30	39	26	13
⊙	B-1	37.5	37	44	28	16
✿	B-1	42.5	21	20	16	4
○	B-1	57.5	26	28	19	9
△	B-1A	15.0	23	26	26	NP
⊗	B-1A	20.0	29	32	26	6
⊕	B-1A	30.0	25	29	19	10
□	B-2	12.5	24	29	24	5
⊗	B-2	17.5	30	29	26	3
◒	B-2	25.0	57	59	36	23
☆	B-3	22.5	36	65	37	28

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TURNERCONS-1-02

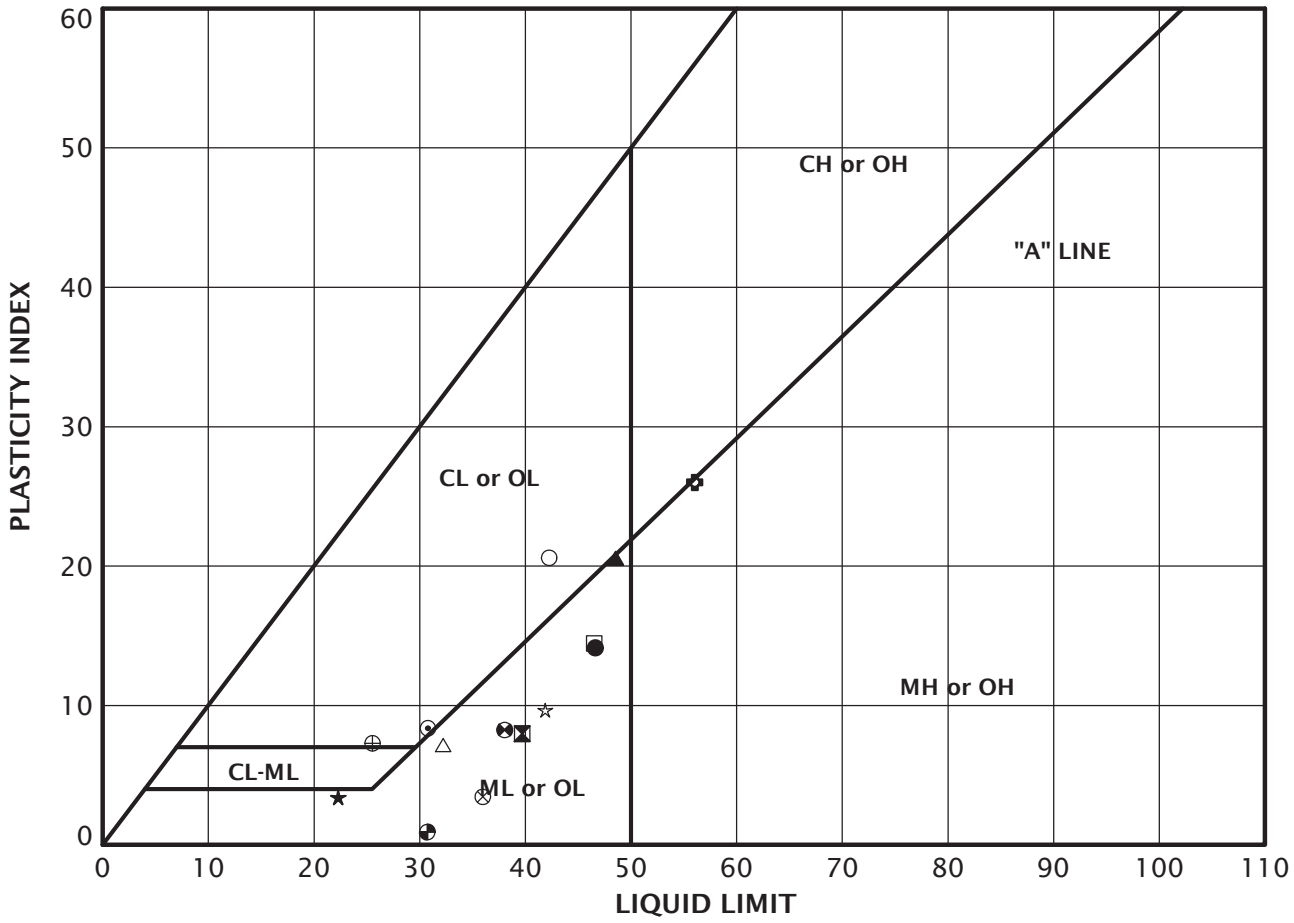
ATTERBERG LIMITS TEST RESULTS

AUGUST 2010

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-12

ATTERBERG_LIMITS 14 TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/11/10:KT



KEY	EXPLORATION NUMBER	SAMPLE DEPTH (FEET)	MOISTURE CONTENT (PERCENT)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
●	B-4	25.0	51	47	32	15
⊠	B-5	20.0	43	40	32	8
▲	B-5	22.5	42	49	28	21
★	B-5	25.0	26	22	19	3
⊙	B-5	32.5	28	31	22	9
✿	B-6	15.0	32	56	30	26
○	B-6	32.5	24	42	22	20
△	B-7	15.0	22	32	25	7
⊗	B-8	25.0	47	36	33	3
⊕	B-8	35.0	25	26	18	8
□	B-9	22.5	38	47	32	15
◍	B-9	25.0	37	38	30	8
◓	B-10	22.5	37	31	30	1
☆	B-10	25.0	41	42	32	10

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TURNERCONS-1-02

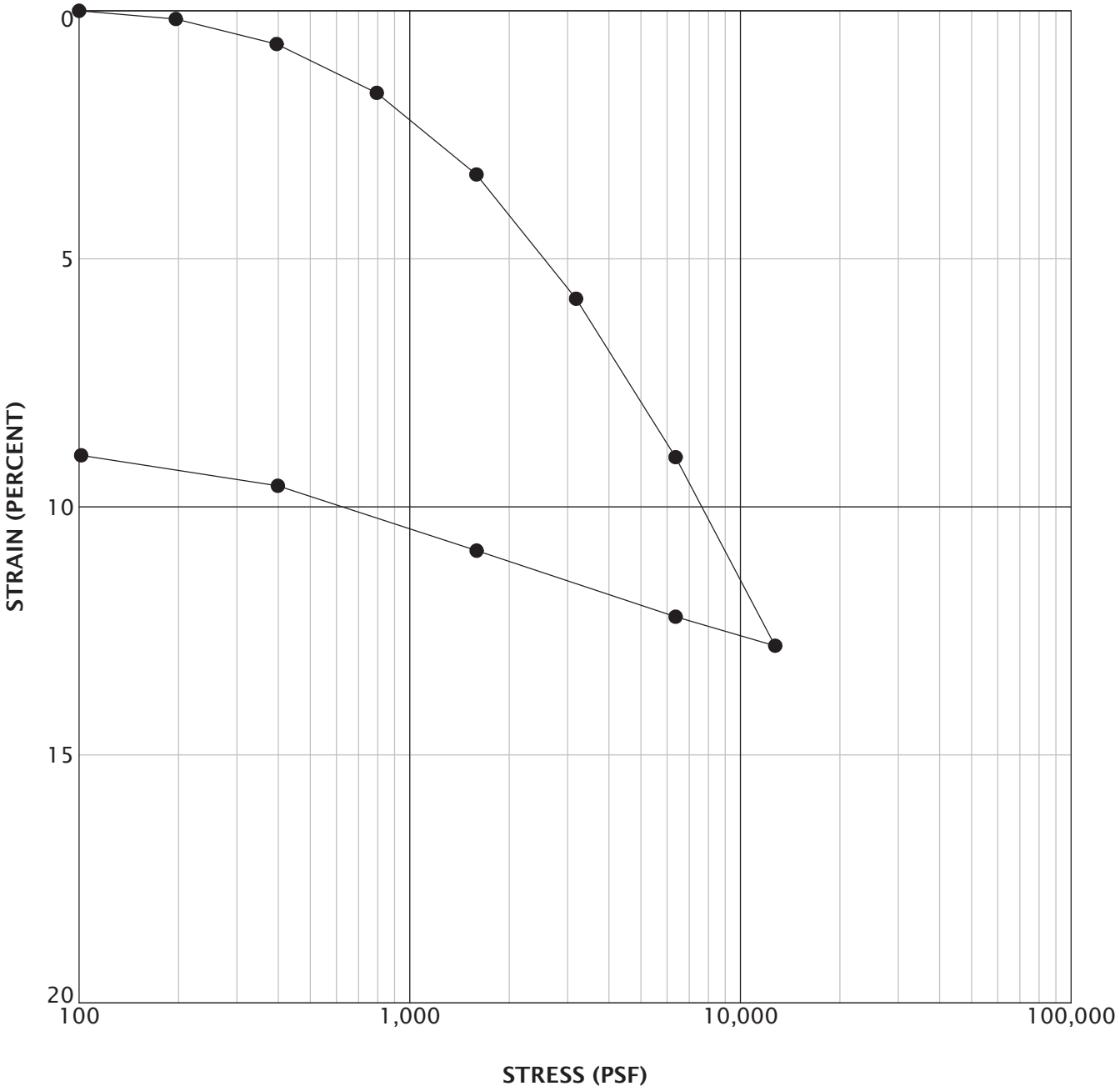
ATTERBERG LIMITS TEST RESULTS
(continued)

AUGUST 2010

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-12

ATTERBERG_LIMITS 14 TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/11/10:KT

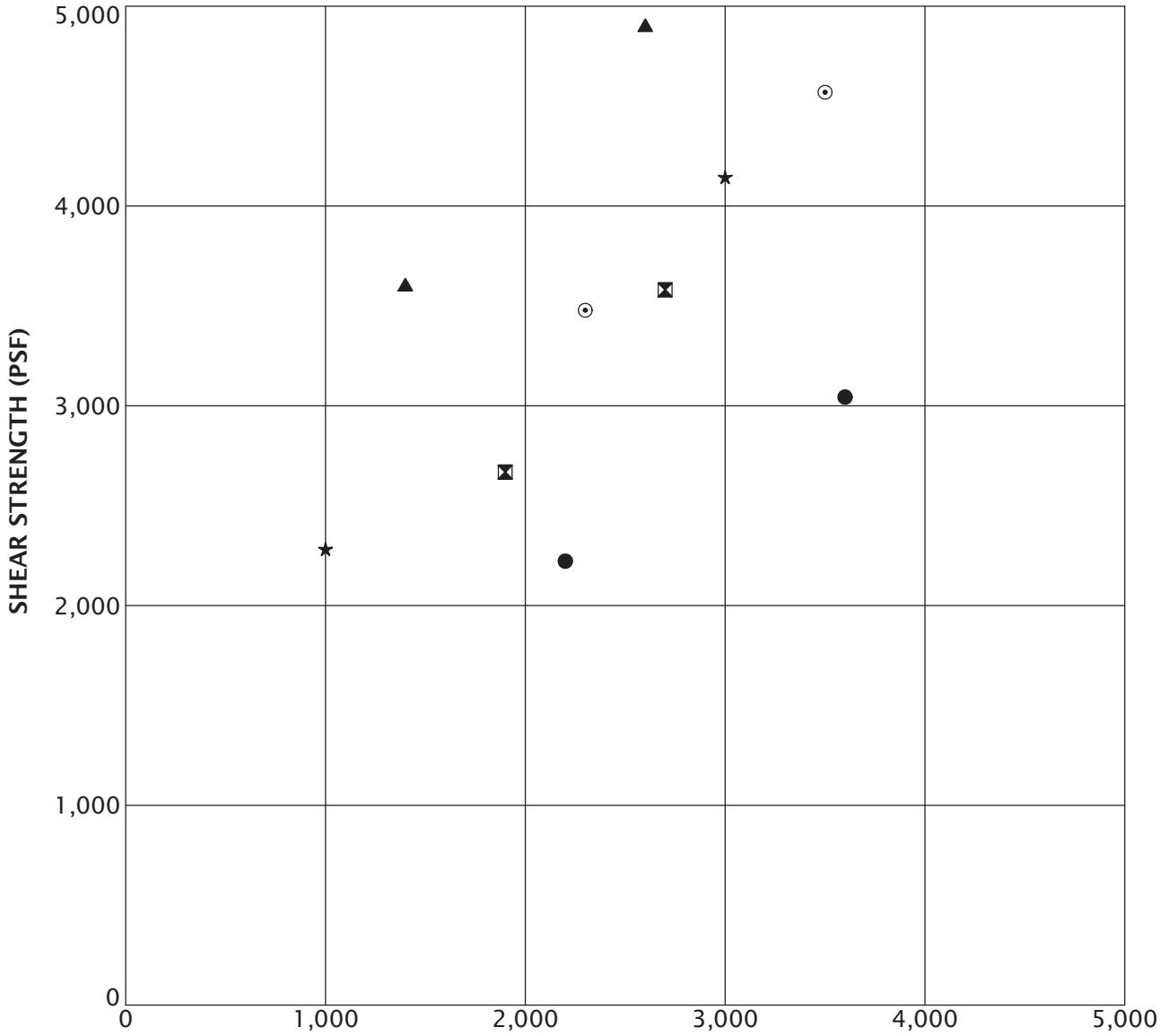


KEY	EXPLORATION NUMBER	SAMPLE DEPTH (FEET)	MOISTURE CONTENT (PERCENT)	DRY DENSITY (PCF)
●	B-1	35.0	30	86

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TURNERCONS-1-02	**CONSOLIDATION TEST RESULTS**	
AUGUST 2010	PROPOSED TEMECULA HOSPITAL TEMECULA, CA	**FIGURE A-13**

CONSOL_STRAIN_100K TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/11/10:KT



KEY	EXPLORATION NUMBER	SAMPLE DEPTH (FEET)	MOISTURE CONTENT (PERCENT)	DRY DENSITY (PCF)	SOAKED
●	B-1	35.0	30	84	YES
⊠	B-2	27.5	23	98	YES
▲	B-3	35.0	15	114	YES
★	B-4	32.5	12	112	YES
⊙	B-5	40.0	19	104	YES

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TURNERCONS-1-02

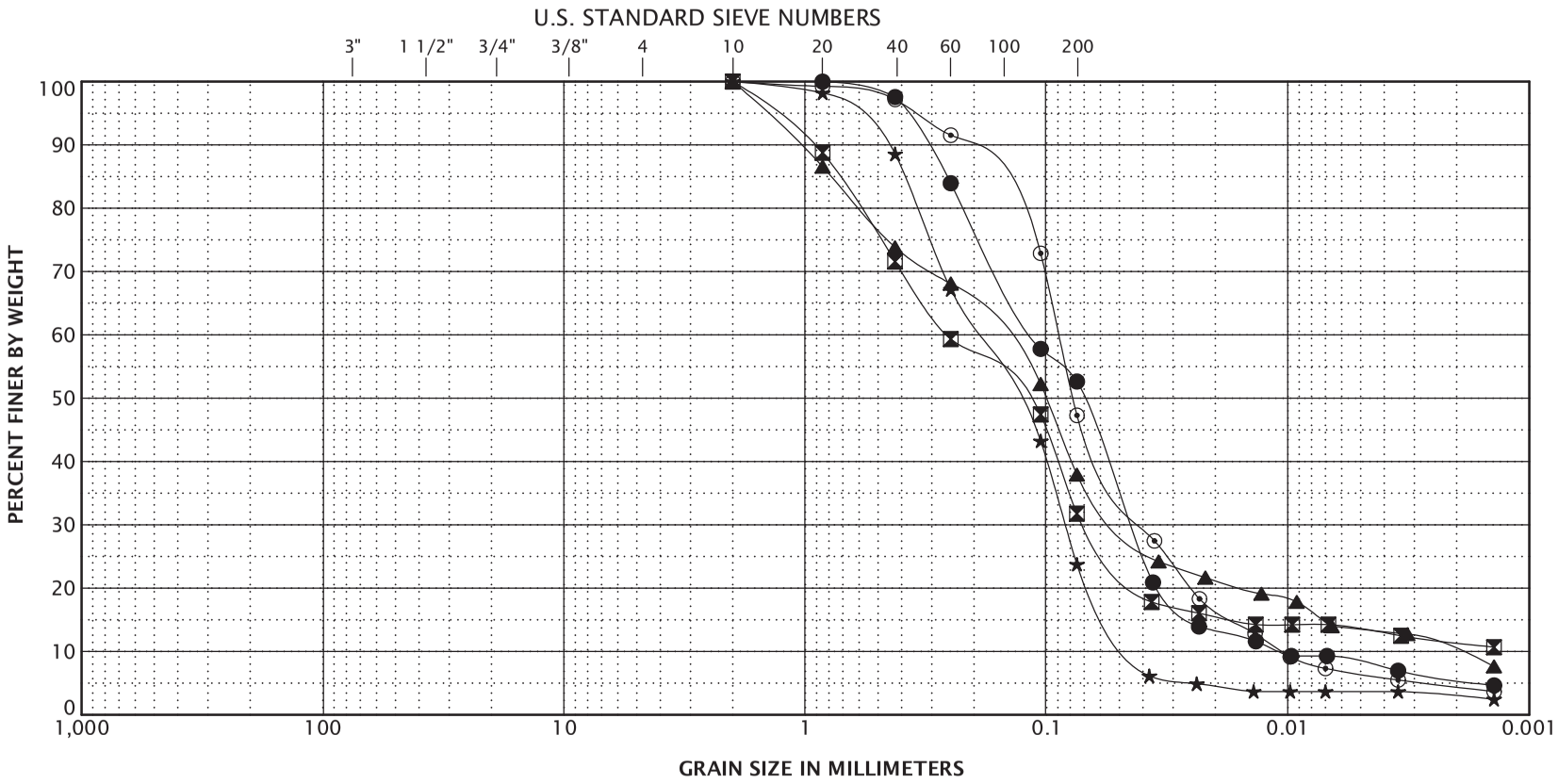
DIRECT SHEAR TEST RESULTS

AUGUST 2010

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-14

DIRECT_SHEAR_FAIL_ENV_NO BOX TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/11/10:KT



BOULDERS	COBBLES	GRAVEL		SAND			FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

KEY	EXPLORATION NUMBER	SAMPLE DEPTH (FEET)	MOISTURE CONTENT (PERCENT)	D60	D50	D30	D10	D5	GRAVEL (PERCENT)	SAND (PERCENT)	SILT (PERCENT)	CLAY (PERCENT)
●	B-1	20.0	22	0.11	0.07	0.04	0.01	0.00	0	47	44	8
⊠	B-1	42.5	25	0.26	0.13	0.07			0	68	18	13
▲	B-1	55.0	27	0.16	0.10	0.05	0.00		0	62	24	14
★	B-1A	15.0	23	0.19	0.13	0.08	0.04	0.02	0	76	20	4
⊙	B-1A	20.0	28	0.09	0.08	0.04	0.01	0.00			41	6

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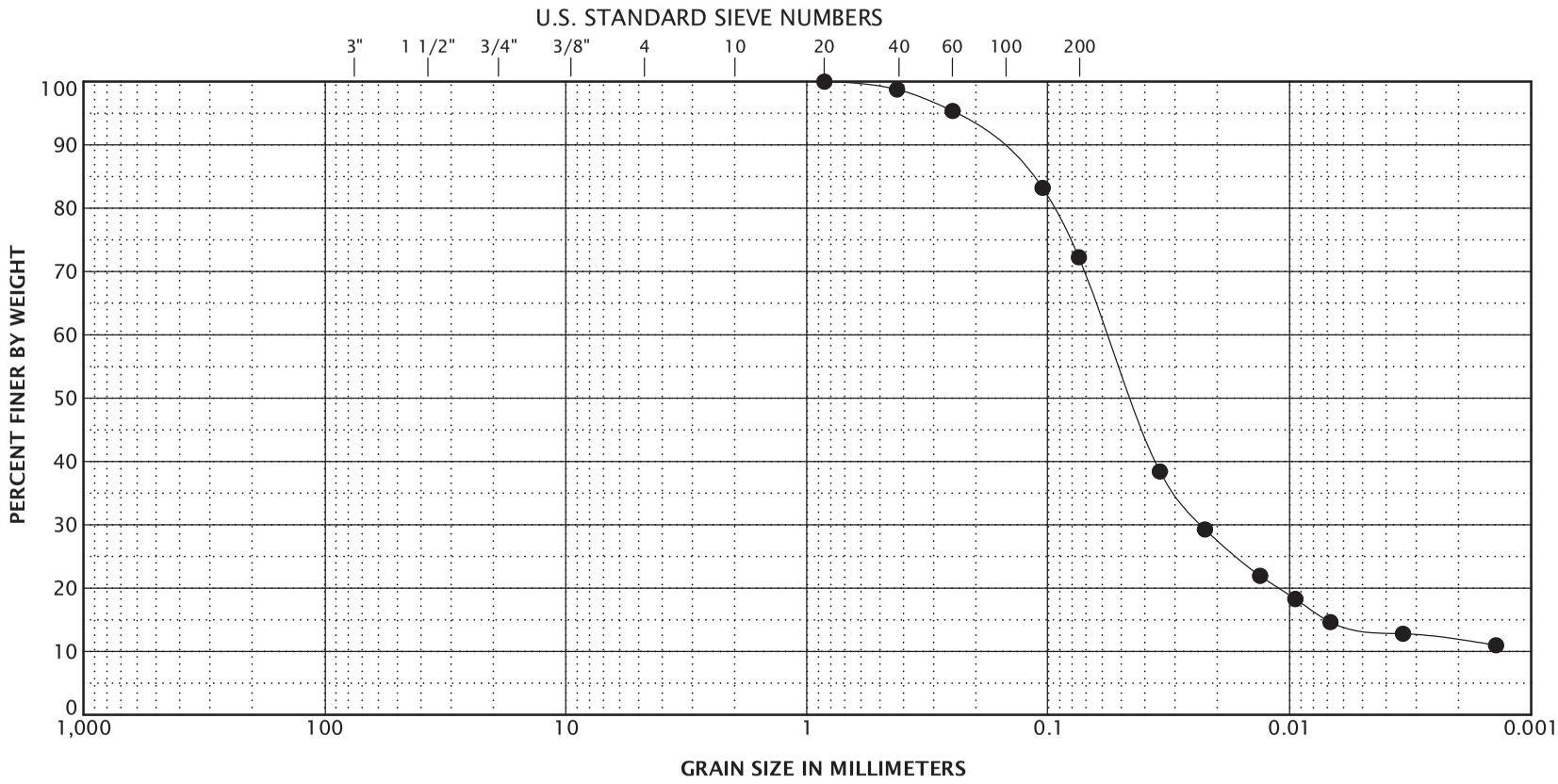
TURNERCONS-1-02

AUGUST 2010

GRAIN-SIZE TEST RESULTS

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-15



BOULDERS	COBBLES	GRAVEL		SAND			FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

KEY	EXPLORATION NUMBER	SAMPLE DEPTH (FEET)	MOISTURE CONTENT (PERCENT)	D60	D50	D30	D10	D5	GRAVEL (PERCENT)	SAND (PERCENT)	SILT (PERCENT)	CLAY (PERCENT)
●	B-2	17.5	135	0.06	0.05	0.02			0	28	58	14

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GRAIN-SIZE TEST RESULTS
(continued)

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-15

SAMPLE INFORMATION			MOISTURE CONTENT (PERCENT)	DRY DENSITY (PCF)	SIEVE			ATTERBERG LIMITS		
EXPLORATION NUMBER	SAMPLE DEPTH (FEET)	ELEVATION (FEET)			GRAVEL (PERCENT)	SAND (PERCENT)	P200 (PERCENT)	LIQUID LIMIT (PERCENT)	PLASTIC LIMIT (PERCENT)	PLASTICITY INDEX (PERCENT)
B-1	10.0	1044.5	22				50			
B-1	12.5	1042.0	26				41			
B-1	15.0	1039.5	22					27	22	5
B-1	17.5	1037.0	25	94				35	22	13
B-1	20.0	1034.5	29		0	47	53	27	24	3
B-1	22.5	1032.0	30					39	26	13
B-1	25.0	1029.5	32				43			
B-1	35.0	1019.5	30	86						
B-1	37.5	1017.0	37					44	28	16
B-1	42.5	1012.0	21		0	68	32	20	16	4
B-1	45.0	1009.5	25				23			
B-1	47.5	1007.0	19				10			
B-1	50.0	1004.5	19				8			
B-1	52.5	1002.0	18				9			
B-1	55.0	999.5	27		0	62	38			
B-1	57.5	997.0	26				27	28	19	9
B-1	65.0	989.5	14	117						
B-1	75.0	979.5	12	120						
B-1A	15.0	1036.0	23		0	76	24	26	26	NP
B-1A	20.0	1031.0	29				47	32	26	6
B-1A	22.5	1028.5	27				71			
B-1A	25.0	1026.0	40							
B-1A	30.0	1021.0	25				11	29	19	10
B-1A	37.5	1013.5	24				14			
B-2	10.0	1041.0	24				50			
B-2	12.5	1038.5	24					29	24	5
B-2	15.0	1036.0	15	107						

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SUMMARY OF LABORATORY DATA

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-16

LAB SUMMARY TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/11/10:KT

SAMPLE INFORMATION			MOISTURE CONTENT (PERCENT)	DRY DENSITY (PCF)	SIEVE			ATTERBERG LIMITS		
EXPLORATION NUMBER	SAMPLE DEPTH (FEET)	ELEVATION (FEET)			GRAVEL (PERCENT)	SAND (PERCENT)	P200 (PERCENT)	LIQUID LIMIT (PERCENT)	PLASTIC LIMIT (PERCENT)	PLASTICITY INDEX (PERCENT)
B-2	17.5	1033.5	30		0	28	72	29	26	3
B-2	20.0	1031.0	25				48			
B-2	25.0	1026.0	57					59	36	23
B-2	27.5	1023.5	22	100						
B-2	35.0	1016.0	25				11			
B-2	45.0	1006.0	13	117						
B-2	62.5	988.5	21	107						
B-2	90.0	961.0	15	111						
B-3	15.0	1034.5	4	109						
B-3	22.5	1027.0	36					65	37	28
B-3	25.0	1024.5	26				18			
B-3	27.5	1022.0	26				18			
B-3	32.5	1017.0	25				24			
B-3	35.0	1014.5	15	114						
B-3	47.5	1002.0	24				21			
B-3	55.0	994.5	18	106						
B-3	65.0	984.5	16	115						
B-3	75.0	974.5	15	120						
B-4	10.0	1038.5	19				8			
B-4	15.0	1033.5	19				9			
B-4	20.0	1028.5	21				22			
B-4	25.0	1023.5	51					47	32	15
B-4	32.5	1016.0	11	122						
B-4	45.0	1003.5	16	110						
B-4	55.0	993.5	12	117						
B-4	65.0	983.5	17	113						
B-5	15.0	1035.0	4	119						

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TURNERCONS-1-02

SUMMARY OF LABORATORY DATA
(continued)

AUGUST 2010

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-16

LAB SUMMARY TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/11/10:KT

SAMPLE INFORMATION			MOISTURE CONTENT (PERCENT)	DRY DENSITY (PCF)	SIEVE			ATTERBERG LIMITS		
EXPLORATION NUMBER	SAMPLE DEPTH (FEET)	ELEVATION (FEET)			GRAVEL (PERCENT)	SAND (PERCENT)	P200 (PERCENT)	LIQUID LIMIT (PERCENT)	PLASTIC LIMIT (PERCENT)	PLASTICITY INDEX (PERCENT)
B-5	20.0	1030.0	39				65	40	32	8
B-5	22.5	1027.5	34				69	49	28	21
B-5	25.0	1025.0	26				11	22	19	3
B-5	27.5	1022.5	13	114						
B-5	30.0	1020.0	24				9			
B-5	32.5	1017.5	28				38	31	22	9
B-5	40.0	1010.0	19	105						
B-5	55.0	995.0	13	118						
B-5	65.0	985.0	16	116						
B-6	10.5	1045.0	18				19			
B-6	12.5	1043.0	25				11			
B-6	15.0	1040.5						56	30	26
B-6	20.0	1035.5	16				13			
B-6	32.5	1023.0						42	22	20
B-7	10.0	1044.0	19				36			
B-7	12.5	1041.5	16				21			
B-7	15.0	1039.0						32	25	7
B-7	17.5	1036.5	22				37			
B-7	27.5	1026.5	8				6			
B-8	10.0	1041.5	3				3			
B-8	15.0	1036.5	18				28			
B-8	25.0	1026.5						36	33	3
B-8	35.0	1016.5	18				24	26	18	8
B-9	10.0	1039.6	22				4			
B-9	12.5	1037.1	20				8			
B-9	17.5	1032.1	18				10			
B-9	20.0	1029.6	18				33			

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TURNERCONS-1-02

SUMMARY OF LABORATORY DATA
(continued)

AUGUST 2010

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-16

LAB SUMMARY TURNERCONS-1-02-B1_10.GPJ GEODESIGN.GDT PRINT DATE: 8/11/10:KT

SAMPLE INFORMATION			MOISTURE CONTENT (PERCENT)	DRY DENSITY (PCF)	SIEVE			ATTERBERG LIMITS		
EXPLORATION NUMBER	SAMPLE DEPTH (FEET)	ELEVATION (FEET)			GRAVEL (PERCENT)	SAND (PERCENT)	P200 (PERCENT)	LIQUID LIMIT (PERCENT)	PLASTIC LIMIT (PERCENT)	PLASTICITY INDEX (PERCENT)
B-9	22.5	1027.1						47	32	15
B-9	25.0	1024.6						38	30	8
B-9	27.5	1022.1	18				9			
B-10	10.0	1041.0	23				9			
B-10	12.5	1038.5	9				5			
B-10	15.0	1036.0	18				9			
B-10	20.0	1031.0	20				32			
B-10	22.5	1028.5	30				56	31	30	1
B-10	25.0	1026.0						42	32	10
B-10	27.5	1023.5	29				29			
B-10	30.0	1021.0					21			
B-10	32.5	1018.5	15				12			
B-10	35.0	1016.0	20				7			
B-10	40.0	1011.0	18				15			
B-10	42.5	1008.5	17				15			
B-10	45.0	1006.0	19				10			
B-10	47.5	1003.5	12				7			
B-10	50.0	1001.0					21			

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TURNERCONS-1-02

SUMMARY OF LABORATORY DATA
(continued)

AUGUST 2010

PROPOSED TEMECULA HOSPITAL
TEMECULA, CA

FIGURE A-16

Turner-1-02 July 13-16, 2010
Sampled by SFK

Turner-1-02 – Supplemental Field Log – Blows by Inch

Boring B-6

Depth	1	2	3	4	5	6		7	8	9	10	11	12		13	14	15	16	17	18
2.5																				
5																				
7.5																				
10																				
12.5																				
15																				
17.5																				
20	1	2	1	2	2	3		2	3	3	2	4	2		3	4	2	4	4	3
22.5	2	1	2	2	2	2		2	3	3	3	3	3		3	3	2	2	4	3
25	1	1	2	3	1	2		2	2	3	2	2	3		7	8	5	6	6	7
27.5	1	3	3	3	3	3		4	3	5	4	5	5		5	5	4	4	6	6
30	2	2	4	4	5	5		5	5	5	6	6	7		7	6	6	8	6	7
32.5	1	1	1	2	1	2		1	2	1	2	2	2		2	3	3	2	2	2
35	3	3	2	3	3	5		3	4	5	7	6	5		5	8	7	6	6	6
37.5	1	2	6	5	7	4		6	7	7	8	8	8		9	6	8	7	9	8
40	3	7	7	8	9	8		12	13	13	12	-	-		-	-	-	-	-	-
42.5	1	3	4	4	4	5		7	6	7	6	8	9		7	7	8	9	7	7
45	4	6	11	10	9	10		15	11	9	10	10	-		-	-	-	-	-	-
47.5	3	3	4	5	4	8		5	5	6	4	6	7		4	5	6	7	6	5
50	2	4	4	3	4	6		5	5	6	7	7	6		7	6	7	7	8	6
52.5	2	4	4	4	5	7		7	7	7	8	8	7		8	8	9	9	9	10
55	2	2	2	2	3	2		3	3	3	4	3	4		3	3	3	5	5	9
57.5	2	2	4	3	4	4		5	6	4	6	8	10		11	12	12	15	-	-
60	2	4	4	3	5	5		5	5	6	6	10	9		12	12	10	11	12	-
62.5	4	6	19	16	20	-		-	-	-	-	-	-		-	-	-	-	-	-
65	3	6	7	5	8	7		6	8	5	8	6	6		8	7	8	8	8	6
67.5	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-
70	2	4	6	7	9	7		8	9	10	8	8	10		8	10	9	9	9	6
72.5	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-
75	2	2	3	4	4	4		3	4	2	4	4	5		5	5	5	5	6	6
77.5																				
80																				
82.5																				
85																				
87.5																				
90																				
92.5																				
95																				
97.5																				
100																				

Turner-1-02 July 13-16, 2010
Sampled by SFK

Boring B-7

Depth	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
2.5																		
5																		
7.5																		
10																		
12.5																		
15																		
17.5																		
20																		
22.5	1	2	2	2	4	3	3	5	3	5	5	6	5	5	5	4	6	5
25	2	3	3	4	1	3	2	3	2	3	3	4	4	4	5	5	5	5
27.5	2	3	3	3	2	2	2	2	2	2	2	3	3	3	2	2	2	2
30	1	3	3	4	5	4	6	9	9	7	7	7	7	6	3	3	4	4
32.5	1	2	3	4	5	4	4	5	4	4	5	3	5	5	6	4	7	7
35	2	3	5	6	5	6	5	6	5	7	6	9	6	8	7	6	9	6
37.5	4	14	10	11	14	-	-	-	-	-	-	-	-	-	-	-	-	-
40	4	3	5	6	6	6	6	5	5	6	6	8	5	8	8	6	7	8
42.5	2	3	3	6	5	5	6	6	8	6	8	8	8	9	9	8	10	10
45	4	8	10	10	9	3	7	12	11	13	14	14	13	11	16	12	-	-
47.5	2	4	4	5	5	4	5	5	5	6	6	6	5	6	7	7	7	7
50	3	3	4	5	4	5	6	6	6	6	7	7	5	7	6	6	7	6
52.5	1	3	5	5	5	7	7	5	6	6	7	6	7	7	9	10	6	6
55	4	4	5	4	5	6	6	6	5	6	7	6	5	7	7	7	5	6
57.5	3	4	6	5	5	6	6	6	6	8	7	6	6	6	8	6	7	7
60	4	5	4	4	5	8	6	8	8	9	10	12	12	10	12	10	10	13
62.5	2	5	7	6	8	6	7	8	7	8	10	10	9	8	10	12	12	-
65	4	10	16	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-
67.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
70	3	4	6	4	8	5	6	6	8	10	10	8	7	7	10	10	7	8
72.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
75	2	3	4	4	4	4	5	4	5	6	6	6	6	7	7	8	8	7
77.5																		
80																		
82.5																		
85																		
87.5																		
90																		
92.5																		
95																		
97.5																		
100																		

Turner-1-02
Sampled by SFK

July 13-16, 2010

Boring B-9

Depth	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
2.5																		
5																		
7.5																		
10																		
12.5																		
15																		
17.5																		
20																		
22.5																		
25																		
27.5																		
30	1	1	4	3	4	5	4	4	4	5	5	4	5	5	4	7	4	5
32.5	P	1	1	1	1	1	1	1	2	1	1	1	3	3	4	3	4	3
35	1	3	4	3	4	3	4	5	4	4	6	4	5	7	5	5	5	5
37.5	1	2	2	2	3	2	3	2	3	3	4	3	3	3	3	3	4	3
40	2	3	5	6	5	5	6	6	6	6	5	7	6	7	7	8	8	8
42.5	1	2	2	3	3	3	3	3	4	4	3	5	6	3	3	4	3	3
45	2	3	4	4	7	5	8	10	9	9	9	8	9	9	8	9	9	10
47.5	2	3	2	3	5	4	6	5	6	5	5	5	5	5	5	6	6	5
50	2	3	5	6	5	6	6	6	6	6	6	6	9	7	7	9	9	6
52.5	1	2	5	5	5	7	8	8	7	7	8	7	7	7	6	7	8	7
55	2	3	6	6	5	6	6	8	6	7	8	6	8	7	6	7	7	7
57.5	2	4	6	6	7	8	8	7	8	10	15	11	9	9	10	7	6	6
60	4	12	12	12	11	11	-	-	-	-	-	-	-	-	-	-	-	-
62.5	2	4	6	5	9	9	9	9	9	6	9	10	7	6	7	9	10	10
65	2	4	6	7	8	7	8	7	8	7	8	8	8	8	10	8	8	7
67.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
70	2	6	9	13	15	20	14	17	20	-	-	-	-	-	-	-	-	-
72.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
75	2	3	4	4	4	5	5	6	6	6	7	8	7	7	8	8	6	7
77.5																		
80																		
82.5																		
85																		
87.5																		
90																		
92.5																		
95																		
97.5																		
100																		

Turner-1-02
Sampled by SFK

July 13-16, 2010

Boring B-10

Depth	1	2	3	4	5	6		7	8	9	10	11	12		13	14	15	16	17	18
2.5																				
5																				
7.5																				
10																				
12.5																				
15																				
17.5																				
20																				
22.5																				
25																				
27.5																				
30																				
32.5	1	3	3	3	2	3		2	3	3	2	2	2		2	2	2	2	2	2
35	1	2	2	2	2	2		2	3	2	3	3	2		3	3	3	2	3	2
37.5	3	2	4	4	5	4		3	4	4	4	4	6		5	5	6	7	5	6
40	1	2	3	3	2	2		3	2	2	2	3	3		2	2	2	2	3	3
42.5	2	2	3	5	5	3		5	5	7	7	6	6		5	6	7	7	6	7
45	1	2	3	2	2	2		2	2	2	2	2	3		2	2	2	2	2	2
47.5	1	4	3	3	4	3		3	2	3	3	3	4		4	4	3	3	3	3
50	2	2	2	4	5	5		6	5	7	7	6	6		6	6	6	9	6	7
52.5	3	4	4	7	6	5		7	6	8	8	9	9		9	8	9	8	9	8
55	3	6	8	6	8	8		8	7	8	8	10	9		9	14	10	12	12	-
57.5	3	5	7	6	7	6		8	8	8	10	10	14		8	10	12	16	8	-
60	2	6	8	10	10	8		10	15	15	15	-	-		-	-	-	-	-	-
62.5	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-
65	7	10	12	10	12	12		13	14	16	16	-	-		-	-	-	-	-	-
67.5	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-
70	3	6	7	6	8	8		12	12	10	13	13	-		-	-	-	-	-	-
72.5	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-
75	3	3	3	3	4	5		4	5	6	5	6	5		6	5	7	7	6	8
6787.5																				
80																				
82.5																				
85																				
87.5																				
90																				
92.5																				
95																				
97.5																				
100																				

Turner-1-02 May 17 -20, 2010
Sampled by CJZ / SFK

Turner-1-02 – Supplemental Field Log – Blows by Inch

Boring B-1

Depth	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
2.5																		
5																		
7.5																		
10																		
12.5																		
15																		
17.5																		
20	1	0	1	0	1	1	1	0	1	0	1	1	1	1	0	1	1	1
22.5	-	-	-	P	1	1	0	1	0	0	1	1	1	1	1	1	1	1
25																		
27.5	2	2	2	1	2	1	2	2	2	2	1	3	2	2	2	3	3	4
30	2	2	2	4	2	3	4	4	4	3	4	2	3	4	4	3	3	3
32.5	1	2	2	2	2	2	2	3	3	2	2	2	3	3	2	1	2	2
35	1	0	1	0	1	1	1	1	2	2	1	1	1	1	2	1	1	1
37.5	-	-	-	P	-	-	-	-	-	P	-	-	2	4	3	1	1	2
40	1	2	3	1	3	2	3	3	3	3	3	3	2	4	3	3	3	3
42.5	1	0	1	-	-	-	1	-	P	-	-	1	1	0	1	0	1	0
45	-	-	-	-	1	1	1	1	1	1	1	2	2	3	2	3	3	3
47.5	1	1	2	2	2	2	2	3	3	2	3	2	2	3	2	2	2	2
50	1	1	2	0	2	2	2	2	1	2	2	1	1	2	1	1	2	2
52.5	1	1	2	2	1	1	2	2	2	2	2	3	2	2	3	2	2	2
55	1	1	1	-	-	1	1	1	1	-	-	-	1	1	-	-	-	1
57.5	1	1	0	1	0	1	1	0	1	0	1	1	1	0	1	1	0	1
60	1	3	3	1	2	2	4	2	3	3	4	3	2	3	3	3	3	6
62.5	1	3	5	5	7	6	6	6	7	7	6	7	7	10	8	7	6	6
65	2	4	7	10	15	11	13	13	15	13	14	15	-	-	-	-	-	-
67.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
70	2	6	7	6	7	8	8	7	8	8	8	8	10	8	10	9	7	8
72.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
75	2	7	6	8	7	8	9	10	19	25	-	-	-	-	-	-	-	-
77.5																		
80																		
82.5																		
85																		
87.5																		
90																		
92.5																		
95																		
97.5																		
100																		

Turner-1-02 May 17 -20, 2010
Sampled by CJZ / SFK

Boring B-1A

Depth	1	2	3	4	5	6		7	8	9	10	11	12		13	14	15	16	17	18
2.5																				
5																				
7.5																				
10																				
12.5																				
15																				
17.5																				
20																				
22.5																				
25																				
27.5																				
30	-	1	-	1	1	1		2	2	3	2	3	2		3	3	3	3	3	3
32.5	1	1	2	2	2	2		3	2	2	2	2	2		2	2	2	2	3	2
35	1	2	1	2	2	2		1	3	2	2	2	2		2	3	2	2	3	2
37.5	2	1	2	2	2	2		1	2	2	2	2	2		2	2	2	2	2	1
40	1	1	1	1	2	2		1	2	2	2	2	2		3	2	3	2	2	2
42.5	1	2	0	2	2	4		2	5	3	3	3	4		3	2	4	4	4	4
45	2	2	2	3	2	2		2	2	3	3	2	3		2	3	3	2	2	3
47.5	1	2	0	2	2	2		2	2	2	2	2	2		2	2	2	2	4	3
50	2	2	3	3	3	2		3	3	2	2	3	2		2	3	2	3	2	4
52.5	3	5	5	5	5	5		6	7	7	4	5	7		6	6	7	6	6	7
55	2	4	6	5	7	5		6	7	9	10	8	8		8	7	6	6	8	7
57.5	3	3	6	4	5	8		6	5	6	7	8	6		6	6	6	5	8	6
60	3	4	4	6	6	4		4	4	5	8	7	7		5	6	7	6	7	6
62.5																				
65																				
67.5																				
70																				
72.5																				
75																				
77.5																				
80																				
82.5																				
85																				
87.5																				
90																				
92.5																				
95																				
97.5																				
100																				

Turner-1-02 May 17 -20, 2010
Sampled by CJZ / SFK

Boring B-2

Depth																				
2.5																				
5																				
7.5																				
10																				
12.5																				
15																				
17.5																				
20																				
22.5																				
25																				
27.5																				
30	1	1	1	2	2	2		2	2	2	2	3	3		2	3	2	2	2	2
32.5	1	1	1	1	1	1		1	1	1	1	1	1		1	2	1	1	2	2
35	2	1	1	1	1	1		2	2	3	2	3	4		5	6	7	8	6	5
37.5	2	2	2	2	2	2		2	3	2	7	9	4		5	5	4	4	4	4
40	2	2	3	4	5	4		5	5	5	5	6	4		4	6	5	5	5	7
42.5	2	2	3	3	4	5		2	3	3	5	7	3		4	4	1	4	5	4
45	2	5	5	5	8	6		5	8	10	10	10	10		9	11	11	11	11	9
47.5	2	4	5	4	5	5		3	5	5	6	3	4		4	4	5	5	5	6
50	2	3	3	4	5	4		4	4	5	4	6	3		6	5	7	6	5	5
52.5	1	3	4	4	5	4		4	4	3	6	4	5		6	6	5	5	4	6
55	2	7	9	8	5	5		7	7	6	7	6	6		7	5	7	8	9	8
57.5	3	5	6	4	5	6		7	5	6	6	5	5		6	6	7	6	7	5
60	1	1	3	5	7	5		9	6	10	6	10	8		7	9	9	8	8	7
62.5	3	6	7	8	5	6		8	8	7	6	5	5		7	9	5	6	12	9
65	6	9	10	6	6	6		8	8	8	7	12	13		11	20	19	-	-	-
67.5	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-
70	3	5	6	5	6	8		6	7	8	7	8	7		6	7	8	6	4	8
72.5	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-
75	3	4	4	4	4	4		4	6	5	4	5	4		4	7	5	5	7	8
77.5	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-
80	1	2	2	5	4	4		4	5	5	5	3	4		4	6	7	5	4	6
82.5	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-
85	2	5	6	7	10	8		8	9	8	10	10	7		12	12	25	-	-	-
87.5	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	
90	4	10	12	13	12	16		10	20	20	-	-	-		-	-	-	-	-	-
92.5	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-
95	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-
97.5	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-
100	4	4	3	2	3	3		4	4	3	5	4	4		8	9	10	7	7	15

Turner-1-02 May 17 -20, 2010
Sampled by CJZ / SFK

Boring B-3

Depth	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
2.5																		
5																		
7.5																		
10																		
12.5																		
15																		
17.5																		
20																		
22.5																		
25																		
27.5																		
30	1	1	2	2	2	2	2	2	2	2	2	2	2	3	1	2	2	1
32.5	1	1	1	2	2	2	3	3	3	2	3	3	3	3	3	3	3	3
35	1	3	3	3	3	3	3	3	3	2	2	3	3	3	2	3	3	3
37.5	1	1	1	2	1	2	2	3	3	3	3	3	3	3	3	4	4	3
40	2	1	2	2	3	2	2	2	3	3	2	2	3	3	3	3	4	4
42.5	1	2	2	2	2	3	2	2	3	3	3	2	3	3	3	4	4	4
45	1	2	1	2	1	2	2	2	3	2	2	3	2	2	2	2	2	2
47.5	1	1	1	2	2	1	2	2	2	1	3	2	3	2	2	2	2	3
50	1	2	4	5	5	6	5	7	7	6	5	5	5	6	6	6	6	5
52.5	3	3	4	5	6	4	6	5	5	6	7	6	6	7	8	6	6	6
55	4	6	10	11	14	9	19	-	-	-	-	-	-	-	-	-	-	-
57.5	4	5	6	5	7	6	7	7	6	7	8	10	9	10	8	8	9	8
60	3	5	8	8	11	9	11	17	15	12	-	-	-	-	-	-	-	-
62.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
65	5	6	9	11	12	13	13	14	14	15	15	17	-	-	-	-	-	-
67.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
70	5	6	7	6	6	7	6	8	7	7	8	8	9	8	9	10	10	8
72.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
75	3	6	9	11	13	16	13	14	14	15	14	15	-	-	-	-	-	-
77.5																		
80																		
82.5																		
85																		
87.5																		
90																		
92.5																		
95																		
97.5																		
100																		

Turner-1-02 May 17 -20, 2010
Sampled by CJZ / SFK

Boring B-4

Depth	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
2.5																		
5																		
7.5																		
10																		
12.5																		
15																		
17.5																		
20																		
22.5																		
25																		
27.5																		
30	1	1	2	1	2	2	2	3	2	3	2	3	2	2	2	3	3	3
32.5	1	3	3	4	3	3	2	4	3	4	3	4	3	4	3	4	3	4
35	1	1	2	2	2	1	2	2	2	3	2	2	2	2	3	2	2	3
37.5	1	2	2	3	2	2	3	2	3	3	2	3	3	3	3	3	2	2
40	1	3	2	2	2	3	2	2	3	2	3	2	2	3	2	2	3	2
42.5	1	2	3	2	2	1	2	2	2	1	2	1	2	2	2	1	1	2
45	1	3	5	5	5	5	6	8	10	8	8	9	18	16	16	-	-	-
47.5	3	2	4	6	9	10	7	9	8	9	9	8	-	-	-	-	-	-
50	2	4	7	4	6	7	7	7	8	8	8	8	9	6	9	10	8	9
52.5	2	3	4	6	6	5	4	7	6	6	8	8	8	7	8	9	9	7
55	4	5	6	7	9	8	7	7	10	8	10	12	12	10	13	15	-	-
57.5	3	4	4	6	6	6	7	9	9	9	9	9	6	8	7	6	4	7
60	3	6	8	9	8	7	9	8	9	8	7	9	9	8	8	7	7	10
62.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
65	4	5	7	6	7	7	8	11	10	10	11	-	-	-	-	-	-	-
67.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
70	3	6	8	7	7	7	8	7	5	9	10	10	7	8	10	8	10	9
72.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
75	5	5	8	6	6	6	3	4	5	9	8	7	5	6	6	7	7	7
77.5																		
80																		
82.5																		
85																		
87.5																		
90																		
92.5																		
95																		
97.5																		
100																		

Turner-1-02 May 17 -20, 2010
Sampled by CJZ / SFK

Boring B-5

Depth	1	2	3	4	5	6		7	8	9	10	11	12		13	14	15	16	17	18
2.5																				
5																				
7.5																				
10																				
12.5																				
15																				
17.5																				
20																				
22.5																				
25																				
27.5																				
30	1	1	2	2	2	2		2	2	2	2	2	1		1	2	1	1	1	1
32.5	P	-	-	-	1	1		1	1	0	1	1	1		1	1	0	1	2	2
35	1	2	2	2	3	3		2	3	4	2	4	3		3	4	4	3	4	4
37.5	2	2	3	3	3	3		3	3	3	3	4	4		4	2	3	2	3	2
40	1	3	4	5	4	4		4	4	5	4	3	5		4	4	4	4	5	4
42.5	1	1	2	1	2	2		2	2	2	3	2	2		3	2	2	2	1	2
45	2	2	4	4	4	5		4	3	4	6	5	5		6	5	5	6	5	6
47.5	2	3	4	4	5	4		6	7	6	5	6	7		8	8	7	6	8	7
50	2	5	6	7	6	6		6	7	6	5	7	7		7	6	7	8	8	6
52.5	1	3	4	7	6	7		6	5	6	6	7	7		5	6	7	7	6	5
55	3	4	8	9	9	8		10	12	10	10	12	-		-	-	-	-	-	-
57.5	2	2	3	4	4	5		7	7	6	7	6	7		7	9	8	8	8	8
60	2	5	5	6	6	6		7	7	7	4	7	7		8	8	9	8	7	7
62.5	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-
65	3	4	6	5	11	13		14	20	17	-	-	-		-	-	-	-	-	-
67.5	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-
70	2	5	5	6	7	6		8	6	6	7	5	7		6	8	7	5	5	7
72.5	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-
75	2	3	5	5	6	4		4	5	5	5	7	5		10	12	9	7	7	8
77.5																				
80																				
82.5																				
85																				
87.5																				
90																				
92.5																				
95																				
97.5																				
100																				

APPENDIX B

BORING B1

CLIENT:	Universal Health Services, Inc.	**PSI PROJECT NO.:**	056-45025
PROJECT:	Temecula Hospital & Medical Buildings	**BORING TYPE:**	Hollow Stem Auger
LOCATION:	Temecula, California	**ELEVATION:**	1060 ft.
DATE DRILLED:	03/10/2004	**LOGGED BY:**	SM

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Elevation [ft]	Depth [ft]	Graphic Log	Sample Type	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows/6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
				Bulk: **SANDY SILT (ML),** light brown, slightly moist, fine grained, roots				Corrosion	
				SILTY SAND (SM), light brown, dry to slightly moist, dense, fine grained	16 30 40	3.0	107.9		
1055	5			**SILTY SAND (SM),** light brown, dry to slightly moist, medium dense, fine grained	15 21 25	6.7	110.3		
1050	10			**SILTY SAND (SM),** light brown, slightly moist, medium dense, fine grained	14 14 20	13.0	115.2		
1045	15			**CLAYEY SILT (ML),** dark brown, slightly moist, stiff	6 11 10	14.2	111.1	Direct Shear	
1040	20			**CLAYEY SANDY SILT (ML),** dark brown, moist, stiff, fine grained, minor amount of coarse sand	7 10 15	18.7	110.6	Corrosion	
1035	25			**SAND (SW),** dark brown, moist, medium dense	13 17 19	14.5	118.7		
1030	30			**SAND (SW),** light brown, wet, dense, transitions to **CLAYEY SILT (ML),** dark brown, wet, hard	20 30 40	18.8	112.4	Direct Shear	
1025	35			**SAND (SW),** light brown, wet, very dense, transitions to **CLAYEY SILT (ML),** dark brown, slightly moist, hard	20 50/6"	22.4	108.5		

▽

BORING/TEST PIT LOG 056-45025 BORING LOG.GPJ PSI LONG BEACH.GDT 4/27/06

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FIGURE NO.

BORING B1

CLIENT:	Universal Health Services, Inc.	**PSI PROJECT NO.:**	056-45025
PROJECT:	Temecula Hospital & Medical Buildings	**BORING TYPE:**	Hollow Stem Auger
LOCATION:	Temecula, California	**ELEVATION:**	1060 ft.
DATE DRILLED:	03/10/2004	**LOGGED BY:**	SM

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Elevation [ft]	Depth [ft]	Graphic Log	Sample Type	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows/6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
				GRAVELLY SAND (SW), light brown, wet, very dense	50/6"	12.3	118.9	Direct Shear	
1015	45			**GRAVELLY SAND (SW),** light brown, wet, very dense	30 50/6"	10.6	129.5		
1010	50			No sample was recovered	20 45 50/5"				No sample recovered.
1005	55			**GRAVELLY SAND (SW),** light brown, wet, very dense	20 50/6"				Water added to aid drilling on remaining depths. Sand Catcher applied to remaining depths.
1000	60			**GRAVELLY SAND (SW),** light brown, wet, medium dense	10 17 20				
995	65			**GRAVELLY SAND (SW),** light brown, wet, very dense	47 50/4"				
990	70			**GRAVELLY SAND (SW),** light brown, wet, very dense	15 35 50/6"				
				Total Depth: 71.5 ft. Groundwater was encountered at 39 ft. Boring was backfilled with bentonite chips.					

BORING/TEST PIT LOG 056-45025 BORING LOG.GPJ PSI LONG BEACH.GDT 4/27/06

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FIGURE NO.

BORING B2

CLIENT:	Universal Health Services, Inc.	**PSI PROJECT NO.:**	056-45025
PROJECT:	Temecula Hospital & Medical Buildings	**BORING TYPE:**	Hollow Stem Auger
LOCATION:	Temecula, California	**ELEVATION:**	1050 ft.
DATE DRILLED:	03/10/2004	**LOGGED BY:**	SM

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Elevation [ft]	Depth [ft]	Graphic Log	Sample Type	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows/6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
				Bulk: **SILTY SAND (ML),** dark brown, slightly moist, fine grained				Corrosion	
				SANDY SILT (ML), dark brown, dry to slightly moist, hard	13 16 40	10.3	90.3		
1045	5			**SILTY SAND (SM),** dark brown, dry to slightly moist, very stiff, iron oxide staining	20 20 24	14.6	90.5	Sieve	
1040	10			**SILTY SAND (SM),** light brown, dry, dense, fine and medium grained	16 24 33	1.3	108.9	Direct Shear	
1035	15			**SILTY SAND (SM),** light brown, dry, dense, fine and medium grained, minor amount of gravel	16 24 36	3.1	109.6	Sieve	
1030	20			**SANDY SILT (ML),** dark blue grey, slightly moist, very stiff	12 13 15	42.8	81.1	Sieve	
1025	25			**SAND (SW),** light brown, wet, very dense, fine to coarse grained	20 30 35	13.8	110.6	Direct Shear	
1020	30			**SILTY SAND (SM),** light brown, wet, medium dense	9 20 25	11.3	121.2	Sieve	
1015	35			No sample was recovered	30 50/6"				

BORING/TEST PIT LOG 056-45025 BORING LOG.GPJ PSI LONG BEACH.GDT 4/27/06

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FIGURE NO.

BORING B2

CLIENT:	Universal Health Services, Inc.	**PSI PROJECT NO.:**	056-45025
PROJECT:	Temecula Hospital & Medical Buildings	**BORING TYPE:**	Hollow Stem Auger
LOCATION:	Temecula, California	**ELEVATION:**	1050 ft.
DATE DRILLED:	03/10/2004	**LOGGED BY:**	SM

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Elevation [ft]	Depth [ft]	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows/6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
		SILTY SAND (SM), light brown, wet, very dense	15 35 50			Sieve	Sand Catcher applied at 40 ft. and remaining depths.
1005	45	**SAND (SP),** light brown, wet, dense	15 35 41				
1000	50	**SILTY SAND (SM),** light brown, wet, medium dense, fine and medium grained	10 15 25			Sieve	
995	55	**SAND (SP),** light brown, wet, dense, fine and medium grained	15 25 40				
990	60	**SILTY SAND (SM),** light brown, wet, dense, fine and medium grained	8 18 30			Sieve	
985	65	**SAND (SP),** light brown, wet, dense, fine and medium grained	18 30 45				
980	70	**SILTY SAND (SM),** light brown, wet, dense, fine to coarse grained	10 28 30			Sieve	
		Total Depth: 71.5 ft. Groundwater was encountered at 24 ft. Boring was backfilled with bentonite chips.					

BORING/TEST PIT LOG 056-45025 BORING LOG.GPJ PSI LONG BEACH.GDT 4/27/06

psi Information To Build On
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FIGURE NO.

BORING B3

CLIENT:	Universal Health Services, Inc.	**PSI PROJECT NO.:**	056-45025
PROJECT:	Temecula Hospital & Medical Buildings	**BORING TYPE:**	Hollow Stem Auger
LOCATION:	Temecula, California	**ELEVATION:**	1051 ft.
DATE DRILLED:	03/10/2004	**LOGGED BY:**	SM

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Elevation [ft]	Depth [ft]	Graphic Log	Sample Type	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows/6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
1050									
1045	5			**SANDY SILT (ML),** light brown, dry to slightly moist, hard, fine grained, iron oxide staining	21 23 26	6.8	100.9		
1040	10			**SAND (SP),** light brown, dry to slightly moist, medium dense, iron oxide staining, fine to medium grained	13 18 21	2.4	108.7		
1035	15			**GRAVELLY SAND (SW),** light brown, dry to slightly moist, medium dense	20 20 24	2.8	116.6		
1030	20			**SAND (SP),** light brown, slightly moist, medium dense, medium grained, transitions to **CLAYEY SILT (CL-ML),** dark grey, slightly moist, very stiff.	13 12 20	45.8	80.2		
1025	25			**SAND (SP),** light brown, wet, dense, fine and medium grained	30 50/6"	16.9	95.3		

Total Depth: 26.5 ft.
Groundwater was not encountered.
Boring was backfilled with soil cuttings.

BORING/TEST PIT LOG 056-45025 BORING LOG.GPJ PSI LONG BEACH.GDT 4/27/06

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FIGURE NO.

BORING B4

CLIENT: Universal Health Services, Inc.	**PSI PROJECT NO.:** 056-45025
PROJECT: Temecula Hospital & Medical Buildings	**BORING TYPE:** Hollow Stem Auger
LOCATION: Temecula, California	**ELEVATION:** 1050 ft.
DATE DRILLED: 03/11/2004	**LOGGED BY:** SM

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Elevation [ft]	Depth [ft]	Graphic Log	Sample Type	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows/6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
1045	5			**SILTY SAND (SM),** light brown, dry to slightly moist, dense, fine grained	17 22 29	3.3	104.1		
1040	10			**SAND (SW),** light brown, dry to slightly moist, dense, fine to coase grained, iron oxide staining, coarse grain content decreases with increased depth	15 20 30	2.2	101.6		
1035	15			**SANDY SILT (ML),** dark brown, slightly moist, hard, transitions to **SAND (SW),** light brown, slightly moist, dense, fine grained	20 30 32	4.8	98.6		
1030	20			**CLAYEY SILT (CL-ML),** dark grey blue, slightly moist, very stiff, iron oxide staining	11 15 25	41.7	81.6		
1025	25			**CLAY (CL),** dark blue grey, moist, hard, transitions to **SILT (ML),** dark grey, moist, hard, iron oxide staining, transitions to **GRAVELLY SAND (SW),** orange brown, moist dense	25 32 40	21.3	106.2		

Total Depth: 26.5 ft.
Groundwater was not encountered.
Boring was backfilled with soil cuttings.

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FIGURE NO.

BORING B5

CLIENT: Universal Health Services, Inc.	**PSI PROJECT NO.:** 056-45025
PROJECT: Temecula Hospital & Medical Buildings	**BORING TYPE:** Hollow Stem Auger
LOCATION: Temecula, California	**ELEVATION:** Approximately 1052 above m.s.l
DATE DRILLED: 03/11/2004	**LOGGED BY:** SM

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Depth [ft]	Graphic Log	Sample Type	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows/6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
			SILTY SAND (SM), light brown, dry to slightly moist, dense, fine grained	21 24 48				
5			**SILTY SAND (SM),** light brown, dry to slightly moist, dense, fine grained	15 18 30	10.0	101.4		
10			**SILTY SAND (SM),** dark brown, slightly moist, dense, fine grained	8 13 16	15.6	105.7		
15			**SANDY SILT (ML),** dark grey brown, slightly moist, very stiff	10 14 16	20.4	101.6		
20			**SANDY SILT (ML),** dark grey brown, slightly moist, very stiff	10 15 20	30.5	97.2		
25			**CLAYEY SILT (CL-ML),** dark grey blue, slightly moist, hard, transitions to **SANDY SILT (ML),** dark brown, slightly moist, hard	25 50/4"	21.3	113.0		

Total Depth: 26.5 ft.
Groundwater was not encountered.
Boring was backfilled with soil cuttings.

BORING/TEST PIT LOG 056-45025 BORING LOG.GPJ PSI LONG BEACH.GDT 4/27/06

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FIGURE NO.

BORING B6

CLIENT:	Universal Health Services, Inc.	**PSI PROJECT NO.:**	056-45025
PROJECT:	Temecula Hospital & Medical Buildings	**BORING TYPE:**	Hollow Stem Auger
LOCATION:	Temecula, California	**ELEVATION:**	Approximately 1052 above m.s.l
DATE DRILLED:	03/11/2004	**LOGGED BY:**	SM

Standard Split Spoon | Shelby Tube | Water Level ATD | Modified California | Bulk Sample | Static Water Table

Depth [ft]	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows/6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
	SANDY SILT (ML), light brown, dry to slightly moist, hard, fine grained	14 29 40			Corrosion	
5	**SAND (SP),** light brown, dry to slightly moist, hard, fine grained	28 38 38	5.8	105.8	Direct Shear	
10	**SAND (SW),** light brown, dry to slightly moist, medium dense, fine to coarse grained	13 20 25	7.4	108.8		
15	**SILTY SAND (SM),** dark brown, slightly moist, medium dense, fine grained, iron oxide staining	10 15 25	18.1	109.1		
20	**SILTY SAND (SM),** dark and light brown, slightly moist, medium dense, fine grained, iron oxide staining	10 16 20	4.6	106.1		
25	No sample was recovered	10 10 10				
	Total Depth: 26.5 ft. Groundwater was not encountered. Boring was backfilled with soil cuttings.					

BORING/TEST PIT LOG 056-45025 BORING LOG.GPJ PSI LONG BEACH.GDT 4/27/06

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FIGURE NO.

BORING B7

CLIENT: Universal Health Services, Inc.	**PSI PROJECT NO.:** 056-45025
PROJECT: Temecula Hospital & Medical Buildings	**BORING TYPE:** Hollow Stem Auger
LOCATION: Temecula, California	**ELEVATION:** Approximately 1050 above m.s.l
DATE DRILLED: 03/11/2004	**LOGGED BY:** SM

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Depth [ft]	Graphic Log	Sample Type	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows/6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
5			**SAND (SW),** light brown, dry to slightly moist, medium dense, fine grained, contains roots	8 10 12				
			Total Depth: 6.5 ft. Groundwater was not encountered. Boring was backfilled with soil cuttings.					

BORING/TEST PIT LOG 056-45025 BORING LOG.GPJ PSI LONG BEACH.GDT 4/27/06

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FIGURE NO.

BORING B8

CLIENT: Universal Health Services, Inc.	**PSI PROJECT NO.:** 056-45025
PROJECT: Temecula Hospital & Medical Buildings	**BORING TYPE:** Hollow Stem Auger
LOCATION: Temecula, California	**ELEVATION:** Approximately 1055 above m.s.l
DATE DRILLED: 03/11/2004	**LOGGED BY:** SM

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Depth [ft]	Graphic Log	Sample Type	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows/6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
5			**SILT (ML),** dark brown, slightly moist, very stiff	11 11 10				
			Total Depth: 6.5 ft. Groundwater was not encountered. Boring was backfilled with soil cuttings.					

BORING/TEST PIT LOG 056-45025 BORING LOG.GPJ PSI LONG BEACH.GDT 4/27/06

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FIGURE NO.

BORING B9

CLIENT:	Universal Health Services, Inc.	**PSI PROJECT NO.:**	056-45025
PROJECT:	Temecula Hospital & Medical Buildings	**BORING TYPE:**	Hollow Stem Auger
LOCATION:	Temecula, California	**ELEVATION:**	Approximately 1058 above m.s.l
DATE DRILLED:	03/11/2004	**LOGGED BY:**	SM

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Depth [ft]	Graphic Log	Sample Type	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows/6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
5			**SILTY SAND (SM),** light brown, dry to slightly moist, dense	13 16 22				
			Total Depth: 6.5 ft. Groundwater was not encountered. Boring was backfilled with soil cuttings.					

BORING/TEST PIT LOG 056-45025 BORING LOG.GPJ PSI LONG BEACH.GDT 4/27/06

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FIGURE NO.

BORING B10

CLIENT: Universal Health Services, Inc.	**PSI PROJECT NO.:** 056-45025
PROJECT: Temecula Hospital & Medical Buildings	**BORING TYPE:** Hollow Stem Auger
LOCATION: Temecula, California	**ELEVATION:** Approximately 1048 above m.s.l
DATE DRILLED: 03/11/2004	**LOGGED BY:** SM

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Depth [ft]	Graphic Log	Sample Type	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows/6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
5			**SANDY SILT (ML),** dark brown, slightly moist, stiff	7 6 6				
			Total Depth: 6.5 ft. Groundwater was not encountered. Boring was backfilled with soil cuttings.					

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FIGURE NO.

BORING/TEST PIT LOG 056-45025 BORING LOG.GPJ PSI LONG BEACH.GDT 4/27/06

BORING B11

CLIENT: Universal Health Services, Inc.	**PSI PROJECT NO.:** 056-45025
PROJECT: Temecula Hospital & Medical Buildings	**BORING TYPE:** Hollow Stem Auger
LOCATION: Temecula, California	**ELEVATION:** Approximately 1047 above m.s.l
DATE DRILLED: 03/11/2004	**LOGGED BY:** SM

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Depth [ft]	Graphic Log	Sample Type	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows/6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
5			**SILTY SAND (SM),** light brown, slightly moist, loose, fine grained	5 3 5				
			Total Depth: 6.5 ft. Groundwater was not encountered. Boring was backfilled with soil cuttings.					

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FIGURE NO.

BORING/TEST PIT LOG 056-45025 BORING LOG.GPJ PSI LONG BEACH.GDT 4/27/06

BORING B12

CLIENT: Universal Health Services, Inc.	**PSI PROJECT NO.:** 056-45025
PROJECT: Temecula Hospital & Medical Buildings	**BORING TYPE:** Hollow Stem Auger
LOCATION: Temecula, California	**ELEVATION:** Approximately 1060 above m.s.l
DATE DRILLED: 03/11/2004	**LOGGED BY:** SM

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Depth [ft]	Graphic Log	Sample Type	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows/6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
5			**SILTY SAND (SM),** dark brown, slightly moist, dense, fine grained	25 20 18				
			Total Depth: 6.5 ft. Groundwater was not encountered. Boring was backfilled with soil cuttings.					

BORING/TEST PIT LOG 056-45025 BORING LOG.GPJ PSI LONG BEACH.GDT 4/27/06

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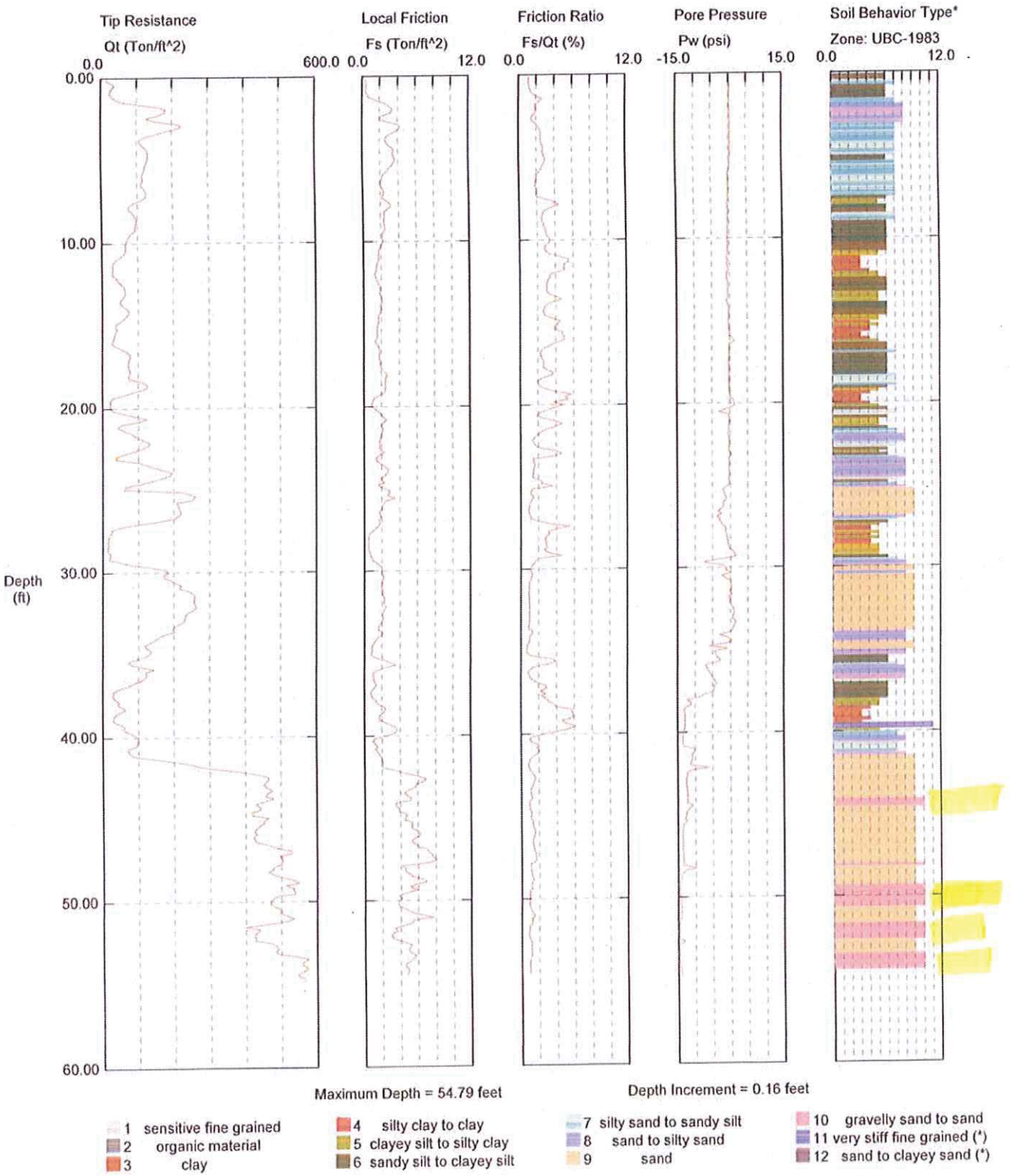
FIGURE NO.

*Soil behavior type and SPT based on data from UBC-1983

TEST AMERICA

Operator: B. BUCKNAM
Sounding: CPT243
Cone Used: 510

CPT Date/Time: 03-10-04 08:00
Location: cpt-1
Job Number: 0

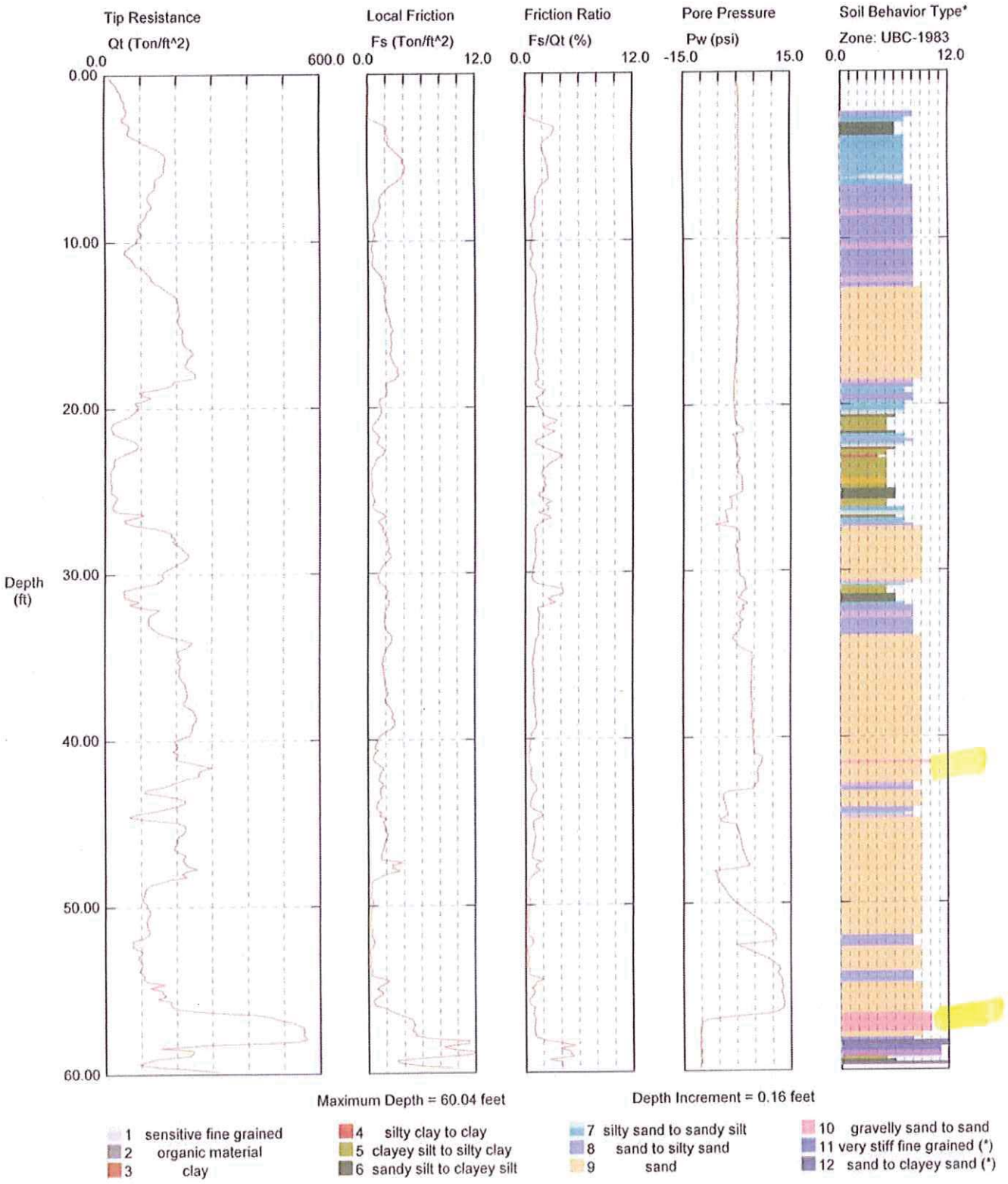


*Soil behavior type and SPT based on data from UBC-1983

TEST AMERICA

Operator: B. BUCKNAM
Sounding: CPT245
Cone Used: 510

CPT Date/Time: 03-10-04 09:32
Location: cpt-2
Job Number: 0

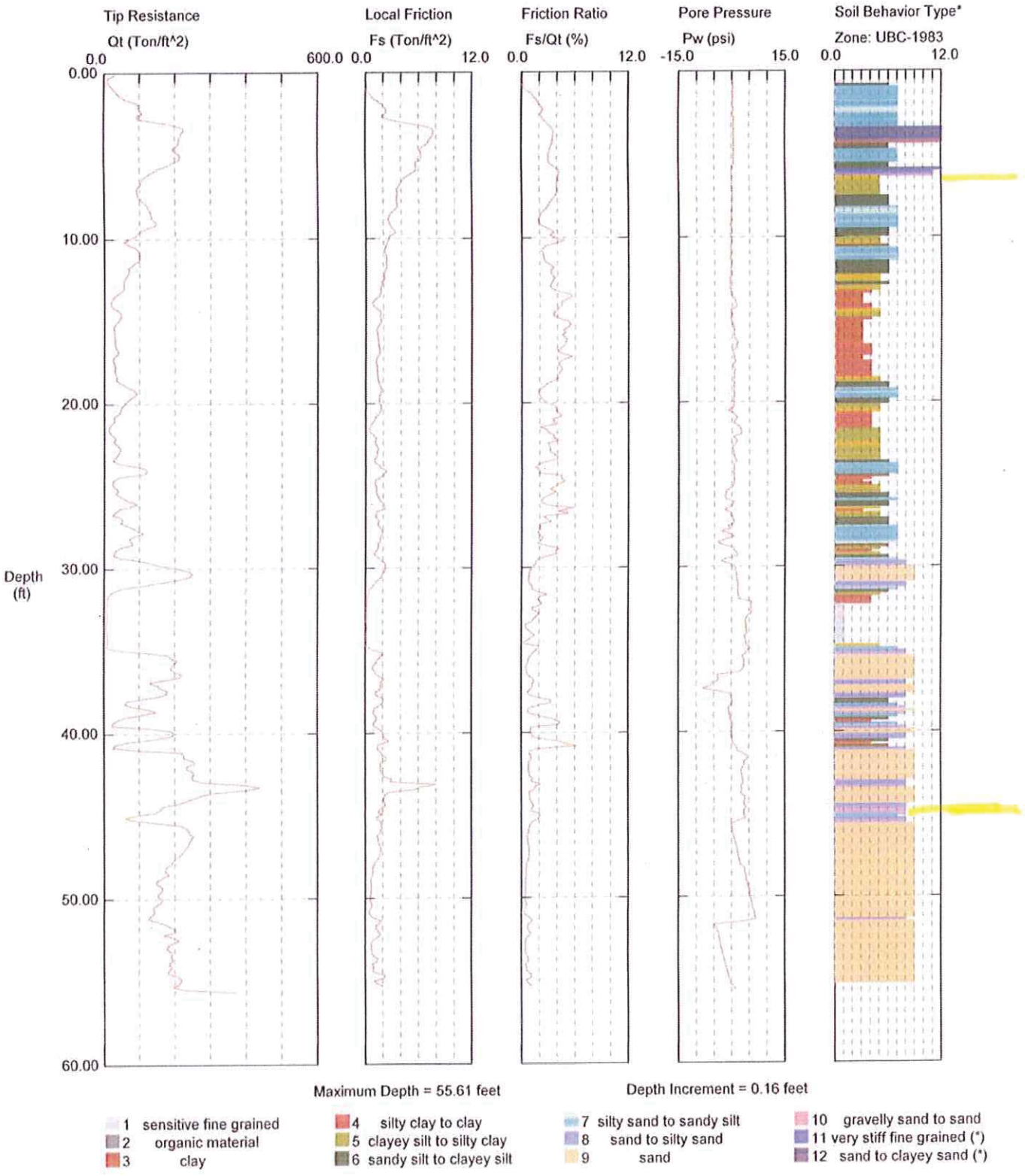


*Soil behavior type and SPT based on data from UBC-1983

TEST AMERICA

Operator: B. BUCKNAM
Sounding: CPT246
Cone Used: 510

CPT Date/Time: 03-10-04 10:52
Location: cpt-3
Job Number: 0

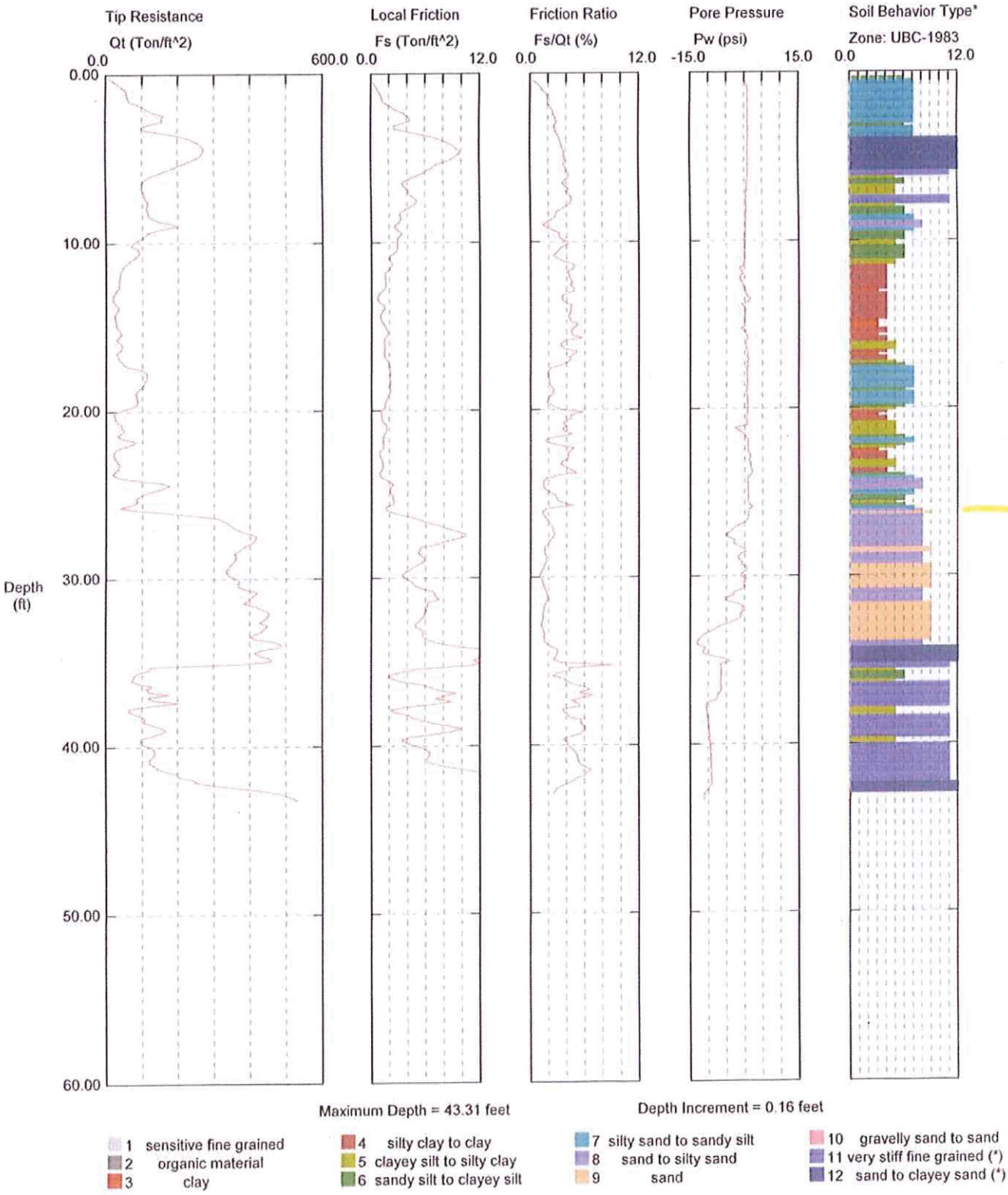


*Soil behavior type and SPT based on data from UBC-1983

TEST AMERICA

Operator: B. BUCKNAM
Sounding: CPT247
Cone Used: 510

CPT Date/Time: 03-10-04 12:16
Location: cpt-4
Job Number: 0

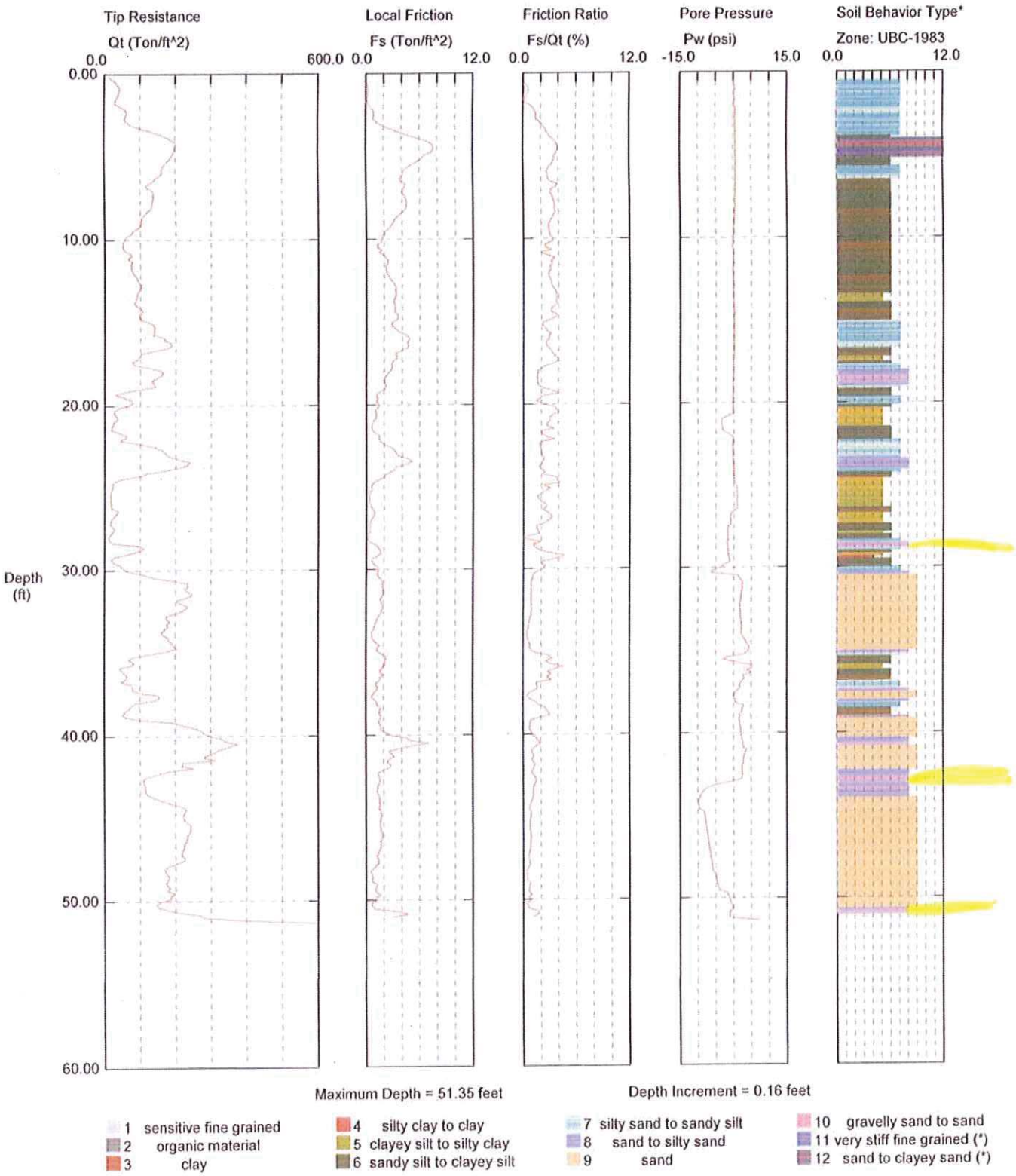


*Soil behavior type and SPT based on data from UBC-1983

TEST AMERICA

Operator: B. BUCKNAM
Sounding: CPT248
Cone Used: 510

CPT Date/Time: 03-10-04 13:39
Location: ct-5
Job Number: 0

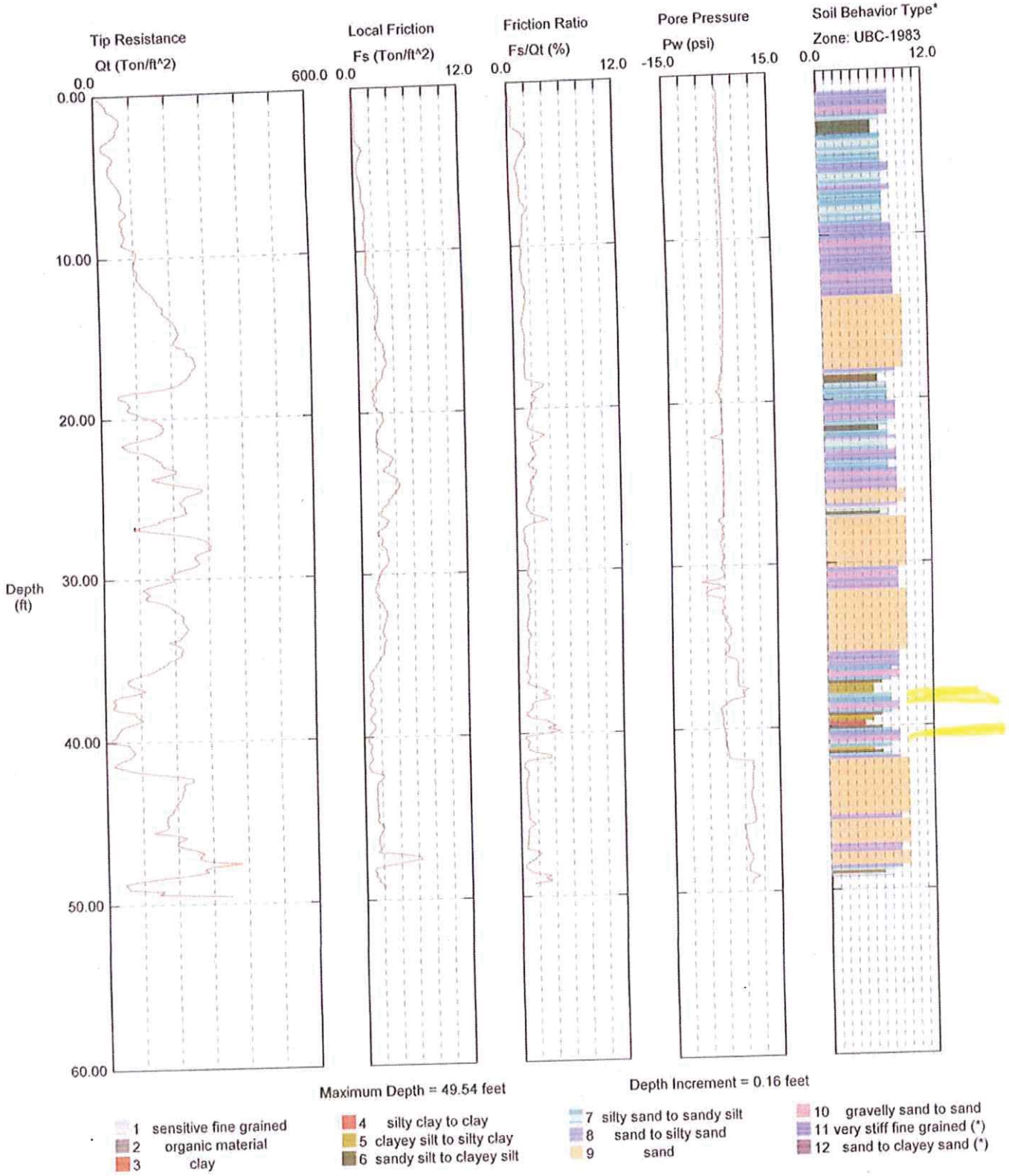


*Soil behavior type and SPT based on data from UBC-1983

TEST AMERICA

Operator: B. BUCKNAM
Sounding: CPT249
Cone Used: 510

CPT Date/Time: 03-10-04 14:45
Location: cpt-6
Job Number: 0



BORING HS B1

CLIENT: HKS	**PSI PROJECT NO.:** 056-65059
PROJECT: Temecula Hospital	**BORING TYPE:** Hollowstem Augers
LOCATION: Temecula, California	**ELEVATION:**
DATE DRILLED: 06/26/2006	**LOGGED BY:** JDF

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Depth [ft]	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows / 6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
	Surface: **Silty SAND (SM),** brown, dry to slightly moist, dried vegetation, shrubs and trees.					
5	Bulk: **Silty SAND (SM),** brown, slightly moist, fine grained sand.		7.3	108.5		
10	**Silty SAND (SM),** brown, slightly moist, medium dense, fine grained sand, highly micaceous.	10 12 15	14.5	106.0		
15						
20	**SAND (SW),** light brown, slightly moist, medium dense, fine to coarse grained sand, less medium grained sand than fine and coarse grained sand.	10 12 12				
25	▽					
30	**Silty SAND (SM),** brown, wet, dense, coarse grained sand, some fine and medium grained sand.	12 15 18				
	Total Depth: 33 Feet Groundwater was encountered at approximately 28 Feet below ground surface at the time of drilling. Boring was backfilled upon completion.					

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FIGURE NO.

BORING/TEST PIT LOG 056-65059 BORING LOGS.GPJ PSI LONG BEACH.GDT 12/15/08

BORING HS B2

CLIENT: HKS	**PSI PROJECT NO.:** 056-65059
PROJECT: Temecula Hospital	**BORING TYPE:** Hollowstem Augers
LOCATION: Temecula, California	**ELEVATION:**
DATE DRILLED: 06/26/2006	**LOGGED BY:** JDF

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Depth [ft]	Graphic Log	Sample Type	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows / 6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
			Surface: **Silty SAND (SM),** brown, dry to slightly moist, dried vegetation, shrubs and trees.					
5					10.5	106.3		
10			**SAND (SP),** light brown, slightly moist, medium dense, fine to medium grained sand.	6 8 12	12.2	104.1		
15								
20			**Silty SAND (SM),** grey brown, moist, medium dense, fine grained sand, trace iron oxidation.	8 8 12				
25		▽						
30			**SAND (SW),** light brown, wet, dense, fine to coarse grained sand, micaceous.	12 12 18				
			Total Depth: 31 1/2 Feet Groundwater was encountered at approximately 25 Feet below ground surface at the time of drilling. Boring was backfilled upon completion.					

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FIGURE NO.

BORING HS B3

CLIENT: HKS	**PSI PROJECT NO.:** 056-65059
PROJECT: Temecula Hospital	**BORING TYPE:** Hollowstem Augers
LOCATION: Temecula, California	**ELEVATION:**
DATE DRILLED: 06/26/2006	**LOGGED BY:** JDF

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Depth [ft]	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows / 6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
	Surface: **Silty SAND (SM),** brown, dry to slightly moist, dried vegetation, shrubs and trees.					
5			8.3	113.0		
10	**Silty SAND (SM),** brown, slightly moist, medium dense, fine to coarse grained sand, mostly fine grained sand.	14 16 21	14.2	115.1		
15						
20	**SAND (SP),** light orange brown, slightly moist, medium dense, fine to medium grained sand, micaceous.	8 9 11				
25	▽					
30	**SAND (SW),** light brown, moist, medium dense, fine to coarse grained sand, transitions into **SILT (ML),** brown, moist, very stiff.	10 11 12				
	Total Depth: 33 Feet Groundwater was encountered at approximately 28 Feet below ground surface at the time of drilling. Boring was backfilled upon completion.					

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FIGURE NO.

BORING/TEST PIT LOG 056-65059 BORING LOGS.GPJ PSI LONG BEACH.GDT 12/15/08

BORING HS B4

CLIENT: HKS	**PSI PROJECT NO.:** 056-65059
PROJECT: Temecula Hospital	**BORING TYPE:** Hollowstem Augers
LOCATION: Temecula, California	**ELEVATION:**
DATE DRILLED: 06/26/2006	**LOGGED BY:** JDF

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Depth [ft]	Graphic Log	Sample Type	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows / 6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
			Surface: **Silty SAND (SM),** brown, dry to slightly moist, dried vegetation, shrubs and trees.					
5					9.3	126.4		
10			**SAND (SW),** light brown, slightly moist, medium dense, fine to coarse grained sand, slightly micaceous.	6 7 8				
15								
20			**SAND (SW),** light brown, slightly moist, medium dense, fine to coarse grained sand, slightly micaceous.	12 12 18				
25			▽					
30			**Silty SAND (SM),** grey, wet, fine to coarse grained sand, highly micaceous.	10 13 16				
			Total Depth: 31 1/2 Feet Groundwater was encountered at approximately 28 Feet below ground surface at the time of drilling. Boring was backfilled upon completion.					

BORING/TEST PIT LOG 056-65059 BORING LOGS.GPJ PSI LONG BEACH.GDT 12/15/08

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FIGURE NO.

BORING MR-B1

CLIENT: HKS	**PSI PROJECT NO.:** 056-65059
PROJECT: Temecula Hospital	**BORING TYPE:** Rotary Wash
LOCATION: Temecula, California	**ELEVATION:**
DATE DRILLED: 06/15/2006	**LOGGED BY:** SJ & SM

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Depth [ft]	Graphic Log	Sample Type	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows / 6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
			Surface: **Silty SAND (SM),** brown, dry to slightly moist, fine to coarse grained sand, dried vegetation, shrubs and trees.					
5			**Silty SAND (SM),** dark grey, slightly moist, very loose, fine to medium grained sand, some coarse grained sand, transitions into **SAND (SP),** grey brown, slightly moist, very loose, fine to medium grained sand, slightly micaceous, slightly silty.	5 6				
10			**SAND (SP),** grey, moist, very loose, fine to medium grained sand, some coarse grained sand, slightly micaceous.	4 4				
15			**SAND (SP/SW),** brown, very moist, dense, medium to coarse grained sand, some very coarse grained sand, estimated 5 to 10% gravels to 1/8", transitions into **Silty CLAY (CL),** dark grey, very moist, hard.	10 18 15				
20			**SAND (SP/SW),** brown grey, wet, medium dense, medium to coarse grained sand, slightly silty.	8 14 9				
			▽					
25			**Silty SAND (SM),** dark grey, wet, dense, medium to coarse grained sand, slightly micaceous.	5 14 16				
30			**SAND (SP/SW),** grey, wet, dense, coarse to very coarse grained sand, estimated 5% fine gravels to 1/8".	14 16 18				
35			**SAND (SP/SW),** dark grey, wet, dense, coarse to very coarse grained sand, estimated 10 to 15% fine gravels to 1/8", transitions into **Clayey Sandy SILT (ML),** dark grey, wet, hard, slightly micaceous, medium to coarse grained sand.	10 15 17				

BORING/TEST PIT LOG 056-65059 BORING LOGS.GPJ PSI LONG BEACH.GDT 12/15/08

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FIGURE NO.

BORING MR-B1

CLIENT: HKS	**PSI PROJECT NO.:** 056-65059
PROJECT: Temecula Hospital	**BORING TYPE:** Rotary Wash
LOCATION: Temecula, California	**ELEVATION:**
DATE DRILLED: 06/15/2006	**LOGGED BY:** SJ & SM

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Depth [ft]	Graphic Log	Sample Type	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows / 6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
			Silty SAND (SM), grey brown, wet, dense, coarse to very coarse grained sand, estimated 30 to 50% gravels to 1/2".	12 15 18				
45			**SAND (SP/SW),** grey brown, wet, very dense, coarse to very coarse grained sand, transitions into **GRAVEL (GP),** grey, wet, very dense, fine gravels to 1/2", transitions into **SAND (SP/SW),** grey brown, wet, very dense, clean to slightly silty, medium to coarse grained sand, some very coarse grained sand at the tip.	15 25 27				
50			**Gravelly SAND (SP/SW),** light grey brown, wet, very dense, coarse to very coarse grained sand, trace medium grained sand, estimated 30 to 40% gravels to 1/4".	26 50/3"				
55			**Sandy GRAVEL (GP),** light grey brown, wet, very dense, gravels to 1/4".	50/4"				
60			**Sandy GRAVEL (GP),** brown, wet, very dense, medium to coarse grained sand, gravels to 1/4", transitions into **Silty CLAY (CL),** brown, wet, hard, transitions into **Silty SAND (SM),** brown, very moist, medium to coarse grained sand, micaceous.	39 26 33/4"				
65			**SAND (SP/SW),** light brown, wet, very dense, medium to coarse grained sand, estimated 40 to 60% gravels 1/8" to 1/4", scattered pockets of silt.	50/4"				
70			**SAND (SP/SW),** light brown, wet, very dense, medium to coarse grained sand, estimated 30 to 40% gravels to 1/8".	50/3.75"				
			Total Depth: 70 1/3 Feet Groundwater was encountered at approximately 24 Feet below ground surface at the time of drilling. Boring was backfilled with grout upon completion.					

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FIGURE NO.

BORING/TEST PIT LOG 056-65059 BORING LOGS.GPJ PSI LONG BEACH.GDT 12/15/08

BORING MR-B2

CLIENT: HKS	**PSI PROJECT NO.:** 056-65059
PROJECT: Temecula Hospital	**BORING TYPE:** Rotary Wash
LOCATION: Temecula, California	**ELEVATION:**
DATE DRILLED: 06/15/2006	**LOGGED BY:** SJ & SM

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Depth [ft]	Graphic Log	Sample Type	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows / 6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
			Surface: **Silty SAND (SM),** brown, dry to slightly moist, fine to coarse grained sand, dried vegetation, shrubs and trees.					
5			**Silty SAND (SM),** dark brown, moist, loose, very fine to fine grained sand, some medium grained sand, micaceous, some slightly clayey fine sandy silt.	3 4				
10			**SAND (SP/SW),** light to medium grey, slightly moist, medium dense, medium to coarse grained sand, slightly micaceous, slightly silty, coarse to very coarse grained sand present in the shoe with an estimated 10 to 20% fine gravels to 3/16".	8 12				
15			**SAND (SP/SW),** light grey, very moist, dense, coarse to very coarse grained sand, some medium grained sand, estimated 10 to 20% fine gravels to 1/8".	12 16 17				
20			**Sandy GRAVEL (GP),** dark grey, moist, dense, coarse to very coarse grained sand, transitions into **SAND (SP),** brown and grey, very moist, dense, thinly laminated fine to medium grained sand, trace dark grey clayey silt at the tip.	6 17 20				
25			**SAND (SW),** dark grey, moist, dense, fine to coarse grained sand, transitions into **Silty SAND (SM),** medium to dark grey, very moist to wet, dense, fine to medium grained sand, some coarse grained sand, slightly micaceous.	10 19 12				
30			**SAND (SP/SW),** grey, very moist to wet, dense, coarse to very coarse grained sand, pockets of silt, slightly micaceous.	14 15 17				
35			**SAND (SP/SW),** dark grey, wet, dense, coarse to very coarse grained sand, slightly micaceous, transitions into **Silty SAND (SM),** grey, wet, dense, fine to medium grained sand, micaceous.	12 17 14				

BORING/TEST PIT LOG 056-65059 BORING LOGS.GPJ PSI LONG BEACH.GDT 12/15/08

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FIGURE NO.

BORING MR-B2

CLIENT: HKS	**PSI PROJECT NO.:** 056-65059
PROJECT: Temecula Hospital	**BORING TYPE:** Rotary Wash
LOCATION: Temecula, California	**ELEVATION:**
DATE DRILLED: 06/15/2006	**LOGGED BY:** SJ & SM

Standard Split Spoon | Shelby Tube | Water Level ATD | Modified California | Bulk Sample | Static Water Table

Depth [ft]	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows / 6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
	SAND (SP/SW), dark grey, wet, dense, coarse to very coarse grained sand.	14 16 16				
45	**SAND (SP/SW),** brown, wet, dense, coarse to very coarse grained sand, estimated 5 to 15% gravels to 1/4", transitions into **SILT (ML),** brown, wet, hard, slightly micaceous.	15 18 14				
50	**SAND (SP/SW),** grey and rusty brown, wet, very dense, coarse to very coarse grained sand, 2" thick iron oxidized horizon at the tip.	38 50/5"				
55	**Silty SAND (SM),** dark grey brown, slightly moist, very dense, fine to medium grained sand, micaceous, transitions into **Sandy SILT (ML),** dark grey, slightly moist, fine grained sand, transitions into **SAND (SP/SW),** brown, wet, medium to very coarse grained sand, slightly silty.	42 48/3"				
60	**SAND (SP/SW),** grey, wet, very dense, coarse to very coarse grained sand, estimated 10 to 20% gravels to 1/8".	50/4"				
65	**Sandy SILT (ML),** grey, moist, hard, slightly clayey, micaceous, transitions into **SAND (SP),** dark brown, moist, very dense, fine to medium grained sand, slightly silty, transitions into **Sandy SILT (ML),** grey, moist, hard, micaceous, slightly clayey.	55/6"				
70	**Sandy SILT (ML),** brown, moist, hard, slightly clayey, micaceous, transitions into **SAND (SP/SW),** brown grey, moist, very dense, medium to coarse grained sand, slightly silty.	30 53/6"				

Total Depth: 71 Feet
Groundwater was encountered at approximately 23 1/2 Feet below ground surface at the time of drilling.
Boring was backfilled with grout upon completion.

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FIGURE NO.

BORING/TEST PIT LOG 058-65059 BORING LOGS.GPJ PSI LONG BEACH.GDT 12/15/08

BORING MR-B3

CLIENT: HKS	**PSI PROJECT NO.:** 056-65059
PROJECT: Temecula Hospital	**BORING TYPE:** Rotary Wash
LOCATION: Temecula, California	**ELEVATION:**
DATE DRILLED: 06/15/2006	**LOGGED BY:** SJ & SM

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Depth [ft]	Graphic Log	Sample Type	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows / 6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
			Surface: **Silty SAND (SM),** grey brown, dry to slightly moist, fine to coarse grained sand, dried vegetation, shrubs and trees.					
5			**Silty SAND (SM),** dark grey brown, slightly moist, loose, fine grained sand, micaceous.	7 8				
10			**Silty SAND (SM),** dark brown, slightly moist, very loose, fine to medium grained sand, slighlty micaceous, less silt than lesser depths.	3 4				
15			**Silty Sandy CLAY (CL),** dark grey to brown, slightly moist to moist, stiff, fine to medium grained sand, common gravels to 1/4", transitions into **SAND (SP),** dark brown, very moist, very loose, fine to medium grained sand, slightly silty, micaceous.	4 5 5				
20			**Gravelly SAND (SP/SW),** light orange brown, wet, very dense, coarse to very coarse grained sand, clean to slightly silty.	17 34 27				
25			**Sandy GRAVEL (GP),** light to medium grey brown, wet, dense, coarse to very coarse grained sand, fine (1/4" to 3/8" gravel).	24 20 15				
30			▽ **Silty CLAY (CH),** dark brown, slightly moist, hard, transitions into **SAND (SP/SW),** grey, moist, coarse to very coarse grained sand, clean to slightly silty.	9 15 25				
35			**SAND (SP/SW),** brown, wet, very dense, medium to very coarse grained sand, clean to slightly silty, slightly micaceous, estimated 10 to 15% gravels to 1/8".	38 50/5.5"				

BORING/TEST PIT LOG 056-65059 BORING LOGS.GPJ PSI LONG BEACH.GDT 12/15/08

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FIGURE NO.

BORING MR-B3

CLIENT: HKS	**PSI PROJECT NO.:** 056-65059
PROJECT: Temecula Hospital	**BORING TYPE:** Rotary Wash
LOCATION: Temecula, California	**ELEVATION:**
DATE DRILLED: 06/15/2006	**LOGGED BY:** SJ & SM

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Depth [ft]	Graphic Log	Sample Type	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows / 6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
			SAND (SP/SW), brown, wet, very dense, medium to very coarse grained sand, clean to slightly silty, slightly micaceous, estimated 10 to 15% gravels to 1/8".	38 45 50/6"				
45			**SAND (SP/SW),** light brown, wet, very dense, medium to very coarse grained sand, slightly silty, slightly micaceous, estimated 30 to 40% gravels 3/16" to 1/4".	42 39 42				
50			**GRAVEL (GP),** brown, wet, very dense, gravels 1/8" to 3/8".	60/5"				
			Total Depth: 51 1/2 Feet Groundwater was encountered at approximately 31 Feet below ground surface at the time of drilling. Boring was backfilled with grout upon completion.					

BORING/TEST PIT LOG 056-65059 BORING LOGS.GPJ PSI LONG BEACH.GDT 12/15/08

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FIGURE NO.

BORING MR-B4

CLIENT: HKS	**PSI PROJECT NO.:** 056-65059
PROJECT: Temecula Hospital	**BORING TYPE:** Rotary Wash
LOCATION: Temecula, California	**ELEVATION:**
DATE DRILLED: 06/16/2006	**LOGGED BY:** SJ & SM

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Depth [ft]	Graphic Log	Sample Type	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows / 6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
			Surface: **Silty SAND (SM),** brown, dry to slightly moist, fine to coarse grained sand, dried vegetation, shrubs and trees.					
5			**Silty SAND (SM),** brown, slightly moist, loose, medium to coarse grained sand,	6 10				
10			**Sandy SILT (ML),** brown, moist, medium stiff, fine grained sand, micaceous.	7 8				
15			**Clayey SILT (ML),** dark brown, moist to very moist, very stiff, micaceous, transitions into **Silty SAND (SM),** medium to brown, wet, medium dense, very fine to fine grained sand, micaceous.	5 10 10				
20			**SAND (SP/SW),** grey brown, very moist, dense, medium to coarse grained sand, micaceous, transitions into **SAND (SP/SW),** light brown, very moist, dense, coarse to very coarse grained sand, estimated 10 to 20% fine gravels to 3/16".	16 22 26				
25			**Gravelly Silty SAND (SP/SW),** grey brown, moist, very dense, medium to coarse grained sand, slightly silty to silty, slightly micaceous, gravels from 1/4" to 1/2".	25 50/3"				
30			**Silty CLAY (CL),** dark grey brown, wet, hard, slightly sandy to sandy, fine to medium grained sand.	8 23 32				
35			**Silty CLAY (CL),** medium grey brown, wet, hard, some fine to medium grained sand. **SAND (SP/SW),** medium to dark grey brown, wet, very dense, medium to coarse grained sand, slightly silty to silty. ▽	23 32 50/3.5"				

BORING/TEST PIT LOG 056-65059 BORING LOGS.GPJ PSI LONG BEACH.GDT 12/15/08

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FIGURE NO.

BORING MR-B4

CLIENT: HKS	**PSI PROJECT NO.:** 056-65059
PROJECT: Temecula Hospital	**BORING TYPE:** Rotary Wash
LOCATION: Temecula, California	**ELEVATION:**
DATE DRILLED: 06/16/2006	**LOGGED BY:** SJ & SM

Standard Split Spoon | Shelby Tube | Water Level ATD
Modified California | Bulk Sample | Static Water Table

Depth [ft]	SOIL DESCRIPTION and CLASSIFICATION (USCS)	Blows / 6"	Moisture Content [%]	Dry Density [pcf]	Lab Tests	Field Notes
	Silty SAND (SM), grey brown, moist, dense, coarse to very coarse grained sand, estimated 20 to 30% gravels 1/8" to 1/4", slightly micaceous.	45 40/3.75"				
45	No recovery. **Gravelly SAND (SP/SW)**	46 52/5.75"				
50	**SAND (SP/SW),** light to medium brown, moist, very dense, coarse to very coarse grained sand, clean to slightly silty, slightly micaceous, estimated 20 to 30% gravels 1/8" to 3/16".	54/6"				
55	**SAND (SP/SW),** light to medium brown, moist, very dense, coarse to very coarse grained sand, slightly micaceous, estimated 20 to 30% gravels 1/8" to 3/16".	48 53/4.75"				
60	**SAND (SP/SW),** light brown, moist, very dense, medium to coarse grained sand, slightly silty, some gravels to 1/4", transitions into **SAND (SP/SW),** light orange brown, moist, very dense, estimated 20 to 30% gravels to 3/16".	55/5"				
65	**SAND (SP/SW),** light brown, moist, very dense, medium to coarse grained sand, slightly silty, some gravels to 1/4", transitions into **SAND (SP/SW),** light orange brown, moist, very dense, estimated 20 to 30% gravels to 3/16".	71/6"				
70	**SAND (SP/SW),** light brown, wet, very dense, medium to coarse grained sand, some fine gravels to 1/4".	75/6"				
	Total Depth: 70 1/2 Feet Groundwater was encountered at approximately 39 Feet below ground surface at the time of drilling. Boring was backfilled with grout upon completion.					

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FIGURE NO.

APPENDIX C

GEOVision
geophysical services

SUSPENSION P & S VELOCITIES
AND Vs30 AT
PROPOSED TEMECULA HOSPITAL SITE,
BORING B-2

May 27, 2010
Report 10173-01

SUSPENSION P & S VELOCITIES
AND Vs30 AT
PROPOSED TEMECULA HOSPITAL SITE,
BORING B-2

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May 27, 2010
Report 10173-01

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APPENDIX B: OYO Suspension PS velocity logging system NIST traceable calibration

INTRODUCTION

OYO suspension PS velocity measurements were performed in one uncased boring at the proposed Temecula Hospital Site. Data acquisition was performed on May 18, 2010 by Robert Steller of GEOVision. Data analysis and report preparation were performed by Robert Steller and reviewed by John Diehl. The work was performed under subcontract with GeoDesign, Inc, with Chris Zadoorian as the point of contact for GeoDesign.

This report describes the field measurements, data analysis, and results of this work.

SCOPE OF WORK

This report presents the results of suspension velocity measurements in one uncased boring, as detailed below. The purpose of these studies was to supplement stratigraphic information obtained from GeoDesign's soil sampling program and to acquire shear wave velocities and compressional wave velocities as a function of depth, as well as to determine Vs30 for the site.

BORING DESIGNATION	DATE LOGGED	BORING DEPTH (FEET)	LOCATION
B-2	5/18/2010	114	NA

Table 1. Boring location and logging date

The OYO Model 170 Suspension Logging Recorder and Suspension Logging Probe were used to obtain in-situ horizontal shear and compressional wave velocity measurements at 1.64 ft intervals. The acquired data was analyzed and a profile of velocity versus depth was produced for both compressional and horizontally polarized shear waves.

A detailed reference for the velocity measurement techniques used in this study is:

> Guidelines for Determining Design Basis Ground Motions, Report TR-102293, Electric Power Research Institute, Palo Alto, California, November 1993, Sections 7 and 8.

INSTRUMENTATION

Suspension soil velocity measurements were performed using the Suspension PS Logging system, manufactured by OYO Corporation, and their subsidiary, Robertson Geologging. This system directly determines the average velocity of a 3.28 ft high segment of the soil column surrounding the boring of interest by measuring the elapsed time between arrivals of a wave propagating upward through the soil column. The receivers that detect the wave, and the source that generates the wave, are moved as a unit in the boring producing relatively constant amplitude signals at all depths.

The suspension system probe consists of a combined reversible polarity solenoid horizontal shear-wave source (S_H) and compressional-wave source (P), joined to two biaxial receivers by a flexible isolation cylinder, as shown in Figure 1. The separation of the two receivers is 3.28 ft, allowing average wave velocity in the region between the receivers to be determined by inversion of the wave travel time between the two receivers. The total length of the probe as used in this survey is 21 ft, with the center point of the receiver pair 12.1 ft above the bottom end of the probe. The probe receives control signals from, and sends the amplified receiver signals to, instrumentation on the surface via an armored 4 conductor cable. The cable is wound onto the drum of a winch and is used to support the probe. Cable travel is measured to provide probe depth data.

The entire probe is suspended in the boring by the cable, therefore, source motion is not coupled directly to the boring walls; rather, the source motion creates a horizontally propagating impulsive pressure wave in the fluid filling the boring and surrounding the source. This pressure wave is converted to P and S_H-waves in the surrounding soil and rock as it passes through the casing and grout annulus and impinges upon the wall of the boring. These waves propagate through the soil and rock surrounding the boring, in turn causing a pressure wave to be generated in the fluid surrounding the receivers as the soil waves pass their location. Separation of the P and S_H-waves at the receivers is performed using the following steps:

1. Orientation of the horizontal receivers is maintained parallel to the axis of the source, maximizing the amplitude of the recorded S_H-wave signals.
2. At each depth, S_H-wave signals are recorded with the source actuated in opposite directions, producing S_H-wave signals of opposite polarity, providing a characteristic S_H-wave signature distinct from the P-wave signal.
3. The 7.0 ft separation of source and receiver 1 permits the P-wave signal to pass and damp significantly before the slower S_H-wave signal arrives at the receiver. In faster soils or rock, the isolation cylinder is extended to allow greater separation of the P- and S_H-wave signals.
4. In saturated soils, the received P-wave signal is typically of much higher frequency than the received S_H-wave signal, permitting additional separation of the two signals by low pass filtering.
5. Direct arrival of the original pressure pulse in the fluid is not detected at the receivers because the wavelength of the pressure pulse in fluid is significantly greater than the dimension of the fluid annulus surrounding the probe (meter versus centimeter scale), preventing significant energy transmission through the fluid medium.

In operation, a distinct, repeatable pattern of impulses is generated at each depth as follows:

1. The source is fired in one direction producing dominantly horizontal shear with some vertical compression, and the signals from the horizontal receivers situated parallel to the axis of motion of the source are recorded.
2. The source is fired again in the opposite direction and the horizontal receiver signals are recorded.
3. The source is fired again and the vertical receiver signals are recorded. The repeated source pattern facilitates the picking of the P and S_H-wave arrivals; reversal of the source changes the polarity of the S_H-wave pattern but not the P-wave pattern.

The data from each receiver during each source activation is recorded as a different channel on the recording system. The recorder has six channels (two simultaneous recording channels), each with a 16 bit 1024 sample record. The recorded data is displayed on the controlling computer display. Data is stored on disk for further processing. Up to 8 sampling sequences can be summed to improve the signal to noise ratio of the signals.

Review of the displayed data on the display allows the operator to set the gains, filters, delay time, pulse length (energy), sample rate, and summing number to optimize the quality of the data before recording. Verification of the calibration of the recorder is performed every twelve months using a NIST traceable frequency source and counter, as outlined in Appendix B.

MEASUREMENT PROCEDURES

The boring was logged uncased, filled with bentonite based drilling mud. The suspension probe was positioned with the mid-point of the receiver spacing at grade, and the mechanical and electronic depth counters were set to zero. The probe was lowered to the bottom of the boring, stopping at 1.64 ft intervals to collect data, as summarized below.

At each measurement depth the measurement sequence of two opposite horizontal records and one vertical record was performed, and the gains were adjusted as required. The data from each depth was checked and recorded on disk before moving to the next depth.

BORING NUMBER	RUN NUMBER	DEPTH RANGE (FEET)	DEPTH AS DRILLED (FEET)	LOST TO SLOUGH (FEET)	SAMPLE INTERVAL (FEET)	DATE LOGGED
B-2	1	1.6 – 101.7	115.0	1.2	1.64	5/18/2010

Table 2. Logging dates and depth ranges

DATA ANALYSIS

The recorded digital records were analyzed to locate the first minima on the vertical axis records, indicating the arrival of P-wave energy. The difference in travel time between receiver 1 and receiver 2 (R1-R2) arrivals are used to calculate the P-wave velocity for that 3.28 ft segment of the soil column. When observable, P-wave arrivals on the horizontal axis records are used to verify the velocities determined from the vertical axis data.

The P-wave velocity calculated from the travel time over the 7.0 ft interval from source to receiver 1 (S-R1) is calculated and plotted for quality assurance of the velocity derived from the travel time between receivers. During analysis, the depth values as recorded are increased by 5.15 ft to correspond to the mid-point of the 7.0 ft S-R1 interval, as illustrated in Figure 1. Travel times are obtained by picking the first break of the P-wave signal at receiver 1 and subtracting 0.3 milliseconds, the calculated and experimentally verified delay from source trigger pulse (beginning of record) to source impact. This delay corresponds to the duration of acceleration of the solenoid before impact.

The recorded digital records are studied to establish the presence of clear S_H-wave pulses, as indicated by the presence of opposite polarity pulses on each pair of horizontal records. Ideally, the S_H-wave signals from the 'normal' and 'reverse' source pulses are very nearly inverted images of each other. Digital FFT - IFFT lowpass filtering was used to remove the higher frequency P-wave signal from the S_H-wave signal. Different filter cutoffs are used to separate P- and S_H-waves at different depths, ranging from 500 Hz in the slowest zones to 2000 Hz in the regions of highest velocity. At each depth, the filter frequency is selected to be at least twice the fundamental frequency of the S_H-wave signal being filtered.

Generally, the first maxima were picked for the 'normal' signals and the first minima for the 'reverse' signals, although other points on the waveform were used if the first pulse was distorted. The absolute arrival time of the 'normal' and 'reverse' signals may vary by +/- 0.2 milliseconds, due to differences in the actuation time of the solenoid source caused by constant mechanical bias in the source or by boring inclination. This variation does not affect the R1-R2 velocity

determinations, as the differential time is measured between arrivals of waves created by the same source actuation. The final velocity value is the average of the values obtained from the 'normal' and 'reverse' source actuations.

As with the P-wave data, S_H-wave velocity calculated from the travel time over the 7.0 ft interval from source to receiver 1 is calculated and plotted for verification of the velocity derived from the travel time between receivers. During analysis, the depth values are increased by 5.15 ft to correspond to the mid-point of the 7.0 ft S-R1 interval. Travel times are obtained by picking the first break of the S_H-wave signal at the near receiver and subtracting 0.3 milliseconds, the calculated and experimentally verified delay from the beginning of the record at the source trigger pulse to source impact.

Figure 2 shows an example of R1 - R2 measurements on a filtered sample suspension. In Figure 2, the time difference over the 3.28 ft interval of 2.46 milliseconds for the horizontal signals is equivalent to an S_H-wave velocity of 1334 ft/sec. Final S_H-wave velocity is the average of the horizontal normal and horizontal reverse (HR) signals. Whenever possible, time differences were determined from several phase points on the S_H-waveform records to verify the data obtained from the first arrival of the S_H-wave pulse. Figure 3 displays the same record before filtering of the S_H-waveform record with a 2000 Hz FFT - IFFT digital lowpass filter, illustrating the presence of higher frequency P-wave energy at the beginning of the record, and distortion of the lower frequency S_H-wave by residual P-wave signal.

Vs30 was calculated by summing the calculated travel times over each 1.64 ft interval from the surface to a depth of 98.4ft (30.0 m).

RESULTS

Suspension P- and S_H-wave velocities are plotted with the calculated Vs30 of 304 m/sec (1000 ft/sec) in Figure 4. The calculated suspension travel time curves are presented with Vs30 in Figure 5. Tabulated measurement depths, pick times and velocities are presented in Table 3.

Calibration procedures and records for the measurement system are presented in Appendix B.

SUMMARY

Discussion of Suspension Results

Suspension PS velocity data are ideally collected in an uncased fluid filled boring, drilled with rotary mud (rotary wash) methods, as this boring was.

Suspension PS velocity data quality is judged based upon 5 criteria:

1. Consistent data between receiver to receiver (R1 – R2) and source to receiver (S – R1) data.
2. Consistent relationship between P-wave and S_H -wave (excluding transition to saturated soils)
3. Consistency between data from adjacent depth intervals.
4. Clarity of P-wave and S_H-wave onset, as well as damping of later oscillations.
5. Consistency of profile between adjacent borings, if available.

These data show excellent correlation between R1 – R2 and S – R1 data, as well as excellent correlation between P-wave and S_H-wave velocities. No adjacent borings were logged. P-wave and S_H-wave onsets are generally clear, and later oscillations are well damped. These are excellent quality velocity data.

Below 40.0 ft, the velocity profile is indicative of firm soil or weathered rock. P-wave velocities rise above 5000 ft/sec (1500 m/sec) at a depth of 38 ft, indicating water table at this depth..

Discussion of Vs30

Vs30 for this site from 0 to 98.3 ft (30.0 m) was calculated at 1000 ft/sec (304 m/sec), classifying it as a NEHRP site class D.

Quality Assurance

These velocity measurements were performed using industry-standard or better methods for both measurements and analyses. All work was performed under GEOVision quality assurance procedures, which include:

- Use of NIST-traceable calibrations, where applicable, for field and laboratory instrumentation
- Use of standard field data logs
- Use of independent verification of data by comparison of receiver-to-receiver and source-to-receiver velocities
- Independent review of calculations and results by a registered professional engineer, geologist, or geophysicist.

Data Reliability

P- and S_H-wave velocity measurement using the Suspension Method gives average velocities over a 3.28 ft interval of depth. This high resolution results in the scatter of values shown in the graphs. Individual measurements are very reliable with estimated precision of +/- 5%. Standardized field procedures and quality assurance checks contribute to the reliability of these data.

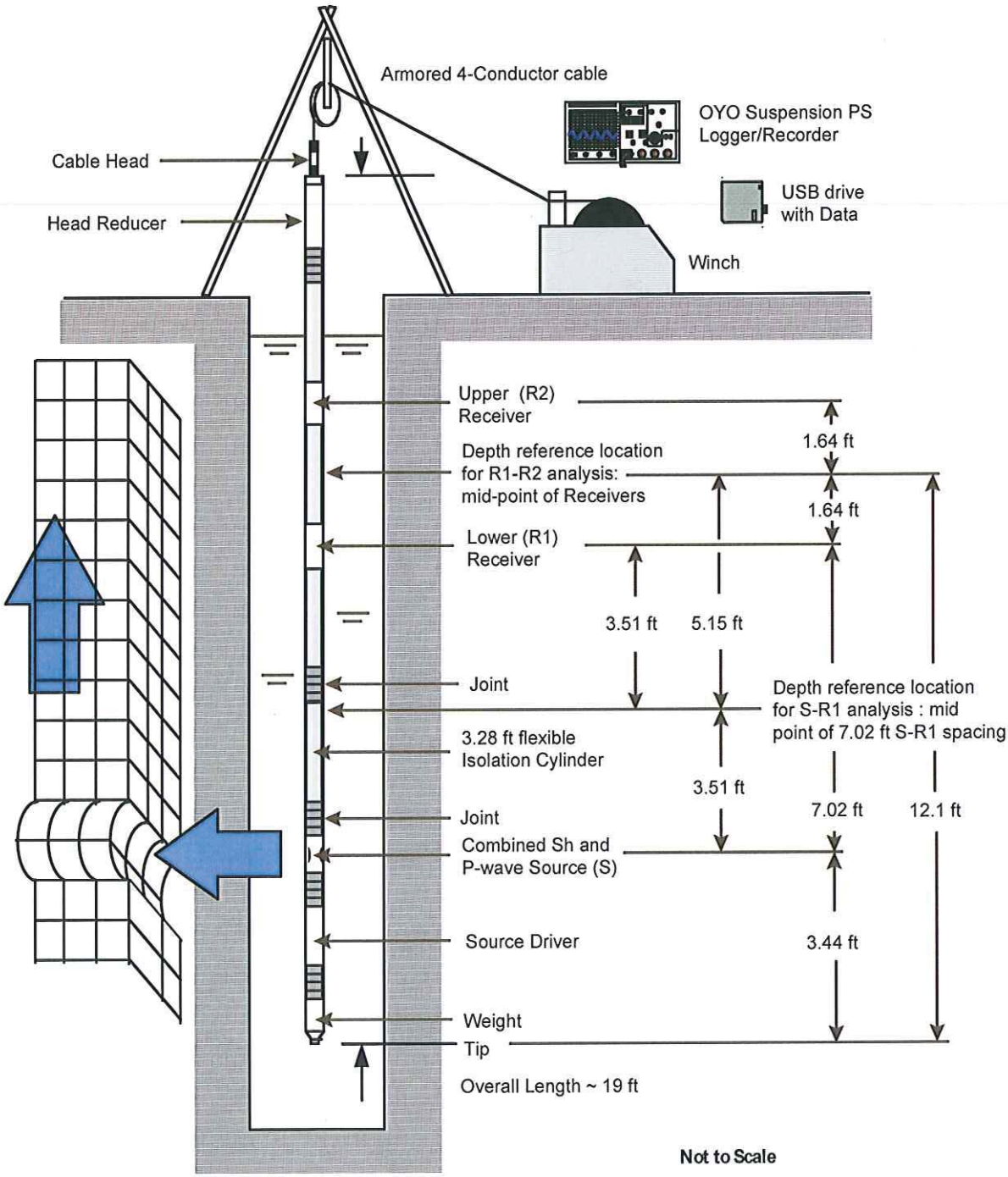


Figure 1. Concept illustration of P-S logging system

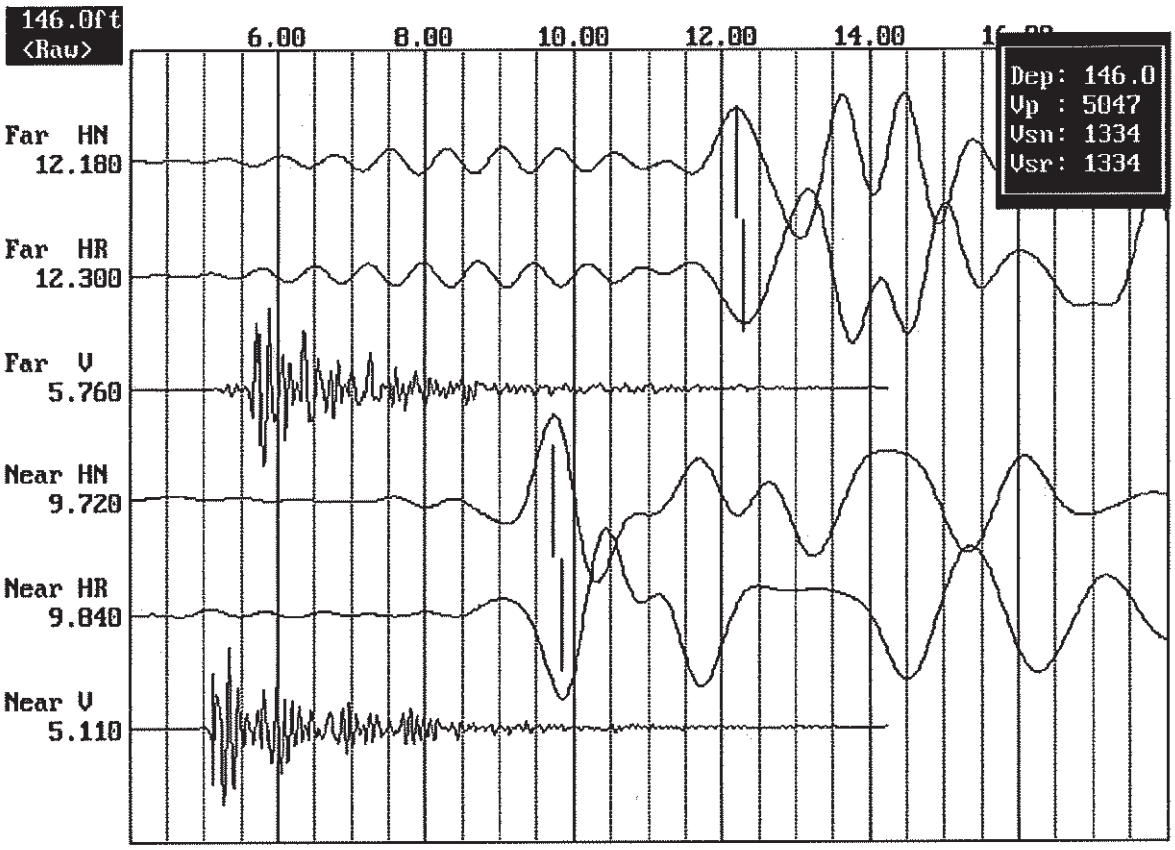


Figure 2. Filtered (2000 Hz lowpass) sample suspension record

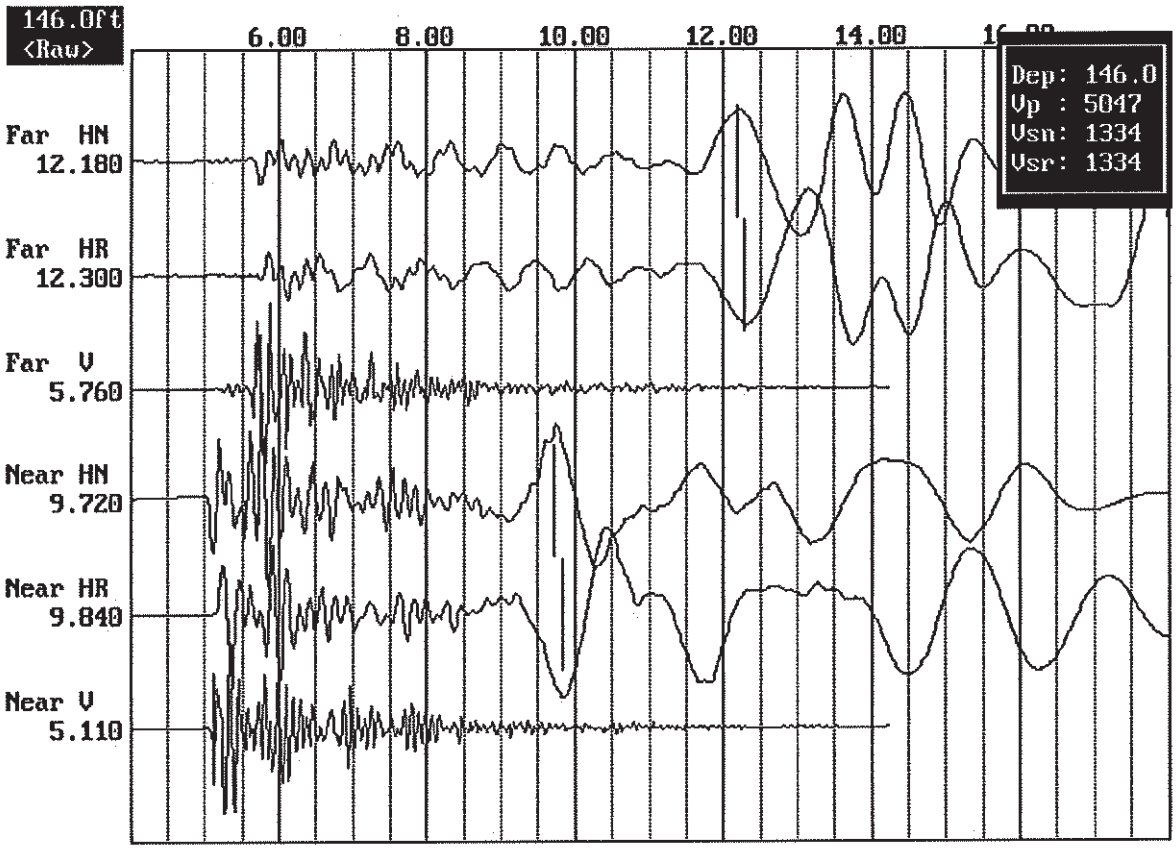


Figure 3. Unfiltered sample suspension record

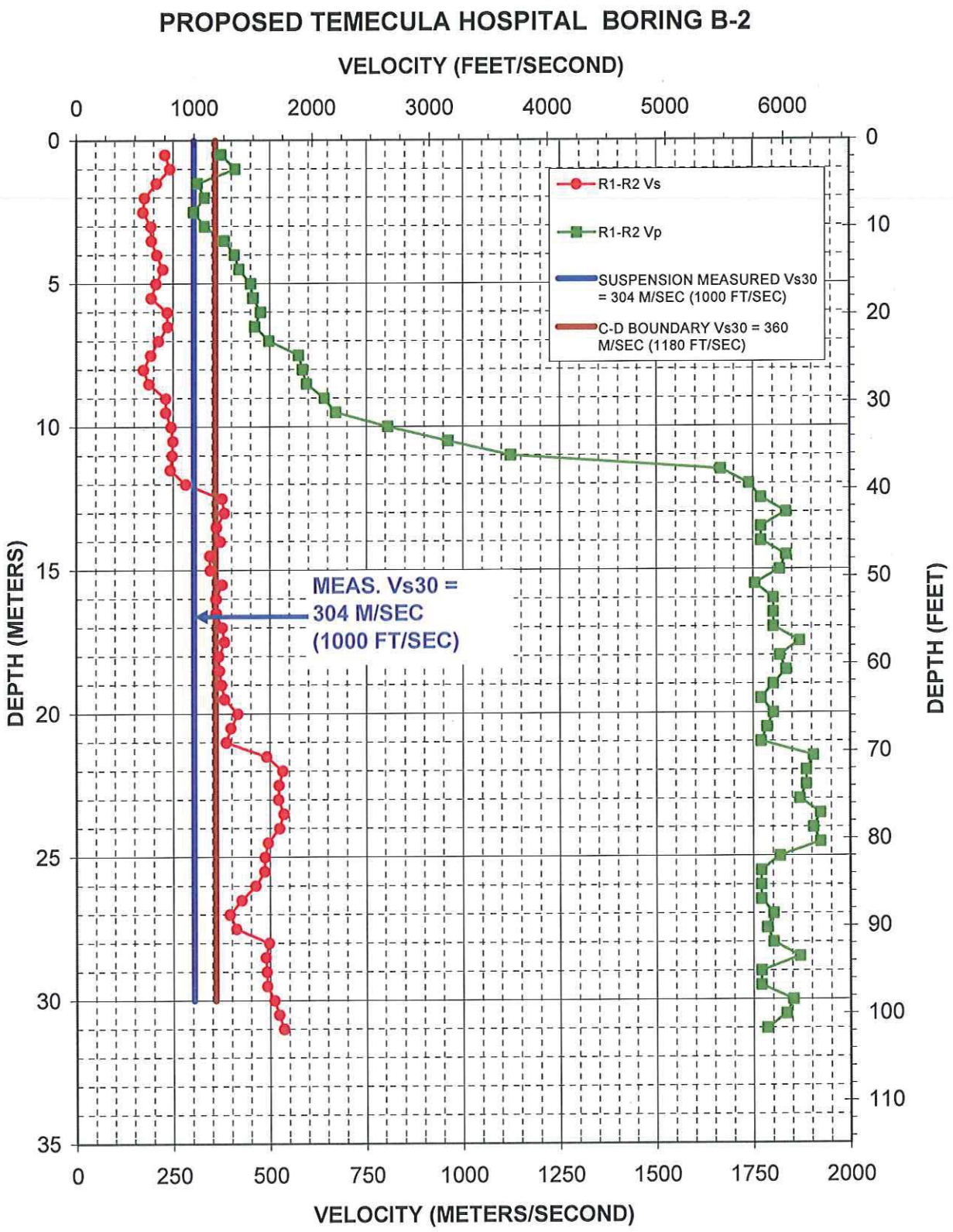


Figure 4. Boring B-2, Suspension P- and S_H-wave Velocities with Vs30 values

Depth		Velocity			
(m)	(feet)	$V\text{-}S_H$ (m/sec)	V-P (m/sec)	$V\text{-}S_H$ (ft/sec)	V-P (ft/sec)
0.5	1.6	230	373	754	1224
1.0	3.3	242	410	795	1345
1.5	4.9	208	313	684	1025
2.0	6.6	178	331	583	1086
2.5	8.2	174	303	571	994
3.0	9.8	194	331	637	1086
3.5	11.5	195	382	640	1252
4.0	13.1	209	408	686	1339
4.5	14.8	225	420	737	1379
5.0	16.4	207	450	679	1478
5.5	18.0	195	457	640	1498
6.0	19.7	235	476	772	1562
6.5	21.3	237	461	777	1512
7.0	23.0	213	498	700	1632
7.5	24.6	193	575	635	1886
8.0	26.2	175	585	575	1919
8.5	27.9	189	595	620	1953
9.0	29.5	232	641	761	2103
9.5	31.2	232	671	761	2202
10.0	32.8	246	806	806	2646
10.5	34.4	250	962	820	3155
11.0	36.1	248	1124	814	3686
11.5	37.7	243	1667	798	5468
12.0	39.4	283	1739	929	5706
12.5	41.0	376	1770	1233	5807
13.0	42.7	382	1835	1252	6020
13.5	44.3	362	1770	1189	5807
14.0	45.9	372	1770	1220	5807
14.5	47.6	345	1835	1131	6020
15.0	49.2	346	1818	1135	5965
15.5	50.9	376	1754	1233	5756
16.0	52.5	361	1802	1184	5911
16.5	54.1	361	1802	1184	5911
17.0	55.8	376	1802	1233	5911
17.5	57.4	382	1869	1252	6132
18.0	59.1	368	1818	1206	5965
18.5	60.7	369	1835	1211	6020
19.0	62.3	375	1802	1229	5911
19.5	64.0	382	1770	1252	5807
20.0	65.6	417	1802	1367	5911
20.5	67.3	398	1786	1307	5859
21.0	68.9	386	1770	1267	5807
21.5	70.5	491	1905	1612	6249
22.0	72.2	533	1887	1750	6190
22.5	73.8	524	1887	1718	6190
23.0	75.5	522	1869	1713	6132
23.5	77.1	536	1923	1759	6309
24.0	78.7	525	1905	1722	6249
24.5	80.4	495	1923	1624	6309
25.0	82.0	487	1818	1597	5965

Table 3. Boring B-2, Suspension R1-R2 depth, pick times, and velocities

Depth		Velocity			
(m)	(feet)	V-S_H (m/sec)	V-P (m/sec)	V-S_H (ft/sec)	V-P (ft/sec)
25.5	83.7	485	1770	1593	5807
26.0	85.3	463	1770	1519	5807
26.5	86.9	426	1770	1399	5807
27.0	88.6	395	1802	1297	5911
27.5	90.2	412	1786	1353	5859
28.0	91.9	498	1802	1632	5911
28.5	93.5	489	1869	1604	6132
29.0	95.1	491	1770	1612	5807
29.5	96.8	493	1770	1616	5807
30.0	98.4	512	1852	1678	6076
30.5	100.1	524	1835	1718	6020
31.0	101.7	536	1786	1759	5859

Table 3, continued. Boring B-2, Suspension R1-R2 depth, pick times, and velocities

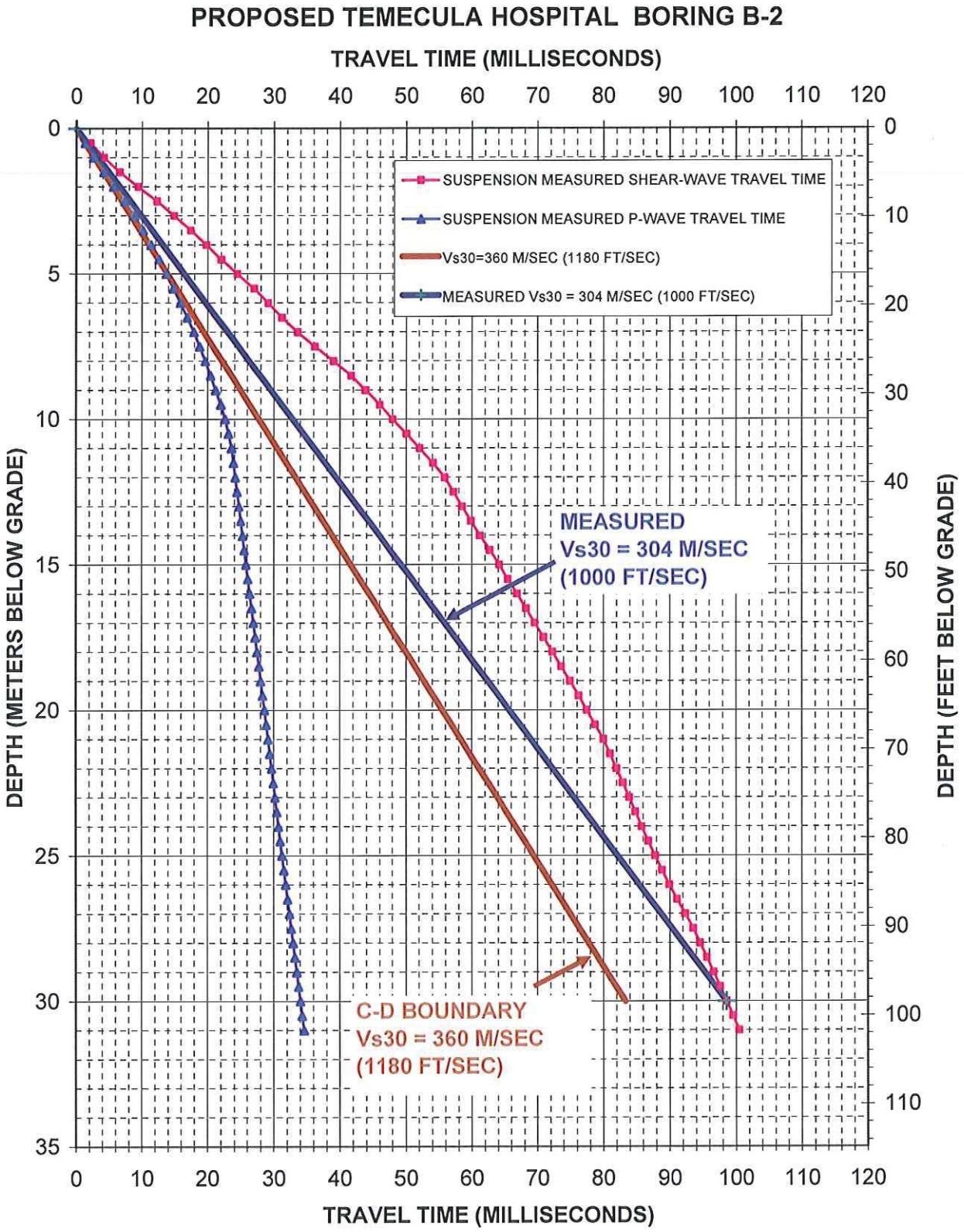


Figure 5. Boring B-2, Suspension P- and S_H-wave travel times with Vs30 values

APPENDIX A

SUSPENSION VELOCITY MEASUREMENT QUALITY ASSURANCE SUSPENSION SOURCE TO RECEIVER ANALYSIS RESULTS

APPENDIX A

SUSPENSION VELOCITY MEASUREMENT QUALITY ASSURANCE SUSPENSION SOURCE TO RECEIVER ANALYSIS RESULTS

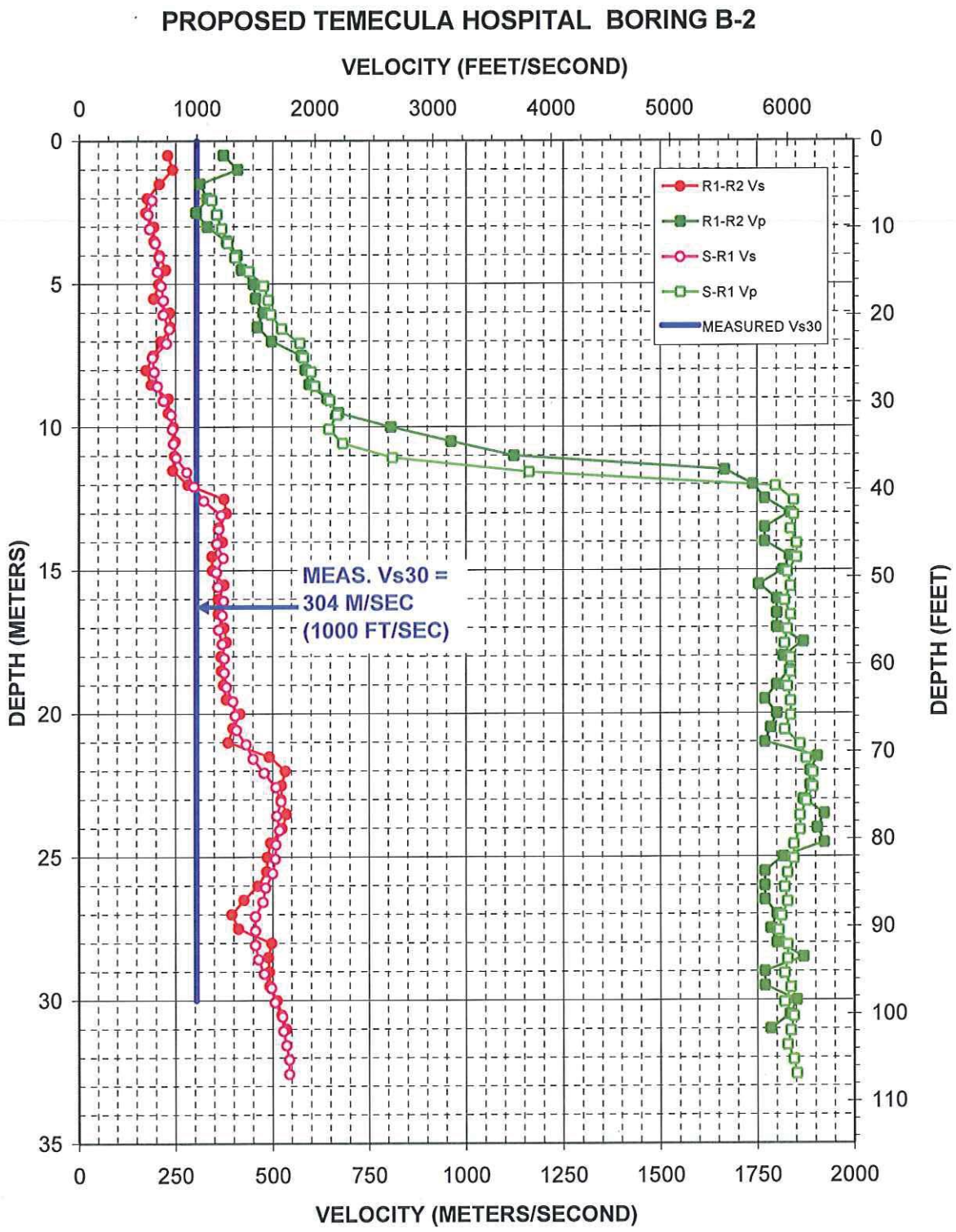


Figure A-1. Boring B-9, R1 - R2 high resolution analysis and S-R1 quality assurance analysis P- and S_H-wave data

Depth (meters)	Velocity V-S_H (m/sec)	Velocity V-p (m/sec)	Depth (feet)	Velocity V- S_H (ft/sec)	Velocity V-p (ft/sec)
2.1	190	342	6.79	622	1123
2.6	180	356	8.43	591	1168
3.1	184	368	10.07	604	1208
3.6	199	384	11.71	651	1261
4.1	208	403	13.35	683	1322
4.6	204	439	14.99	670	1442
5.1	213	477	16.63	700	1564
5.6	219	489	18.27	719	1603
6.1	219	495	19.91	719	1625
6.6	234	523	21.56	769	1717
7.1	227	571	23.20	745	1872
7.6	191	580	24.84	627	1903
8.1	196	599	26.48	642	1967
8.6	204	610	28.12	669	2000
9.1	219	648	29.76	720	2128
9.6	239	667	31.40	784	2187
10.1	242	647	33.04	795	2121
10.6	246	682	34.68	806	2236
11.1	253	811	36.32	829	2659
11.6	280	1163	37.96	918	3816
12.1	298	1798	39.60	979	5900
12.6	324	1845	41.24	1062	6053
13.1	368	1845	42.88	1208	6053
13.6	362	1837	44.52	1188	6027
14.1	357	1853	46.16	1172	6079
14.6	373	1853	47.80	1225	6079
15.1	356	1829	49.44	1168	6001
15.6	360	1837	51.08	1180	6027
16.1	375	1821	52.72	1230	5975
16.6	371	1837	54.36	1217	6027
17.1	362	1829	56.00	1188	6001
17.6	371	1821	57.64	1217	5975
18.1	376	1837	59.28	1234	6027
18.6	376	1837	60.93	1234	6027
19.1	381	1829	62.57	1252	6001
19.6	399	1837	64.21	1307	6027
20.1	405	1837	65.85	1327	6027
20.6	408	1821	67.49	1337	5975
21.1	432	1861	69.13	1418	6105
21.6	451	1877	70.77	1478	6159
22.1	479	1894	72.41	1571	6213
22.6	508	1894	74.05	1668	6213
23.1	522	1877	75.69	1712	6159
23.6	511	1861	77.33	1676	6105
24.1	518	1861	78.97	1700	6105
24.6	508	1845	80.61	1668	6053
25.1	507	1845	82.25	1664	6053
25.6	500	1829	83.89	1640	6001
26.1	482	1821	85.53	1581	5975
26.6	476	1829	87.17	1560	6001
27.1	456	1814	88.81	1497	5950
27.6	456	1806	90.45	1497	5925
28.1	456	1829	92.09	1497	6001
28.6	464	1829	93.73	1523	6001
29.1	479	1821	95.37	1571	5975
29.6	497	1837	97.01	1629	6027
30.1	506	1821	98.65	1660	5975
30.6	526	1845	100.30	1725	6053
31.1	528	1837	101.94	1734	6027
31.6	536	1829	103.58	1760	6001
32.1	543	1845	105.22	1782	6053
32.6	543	1853	106.86	1782	6079

Table A-1. Boring B-9, S - R1 quality assurance analysis P- and S_H-wave data

APPENDIX B

OYO 170 VELOCITY LOGGING SYSTEM

NIST TRACEABLE

CALIBRATION PROCEDURE

GEOVision SUSPENSION PS SEISMIC LOGGER/RECORDER

CALIBRATION PROCEDURE

Reviewed 7/21/08

Objective

The timing/sampling accuracy of seismic recorders or data loggers is required for several GEOVision field procedures including Seismic Refraction, Downhole P-S Seismic Velocity Logging, and Suspension P-S Seismic Velocity Logging. This procedure describes the method for measuring the timing accuracy of a seismic data logger, such as the OYO Model 170 or OYO/Robertson Model 3403. The objective of this procedure is to verify that the timing accuracy of the recorder is accurate to within 1%.

Frequency of Calibration

The calibration of each GEOVision seismic data logger is twelve (12) months. In the case of rented seismic logger/recorders, calibration must be performed prior to use.

Test Equipment Required

The following equipment is required. Item #2 must have current NIST traceable calibration.

1. Function generator, Krohn Hite 5400B or equivalent
2. Frequency counter, HP 5315A or equivalent
3. Test cables, from item 1 to item 2, and from item 1 to subject data logger.

Procedure

This procedure is designed to be performed using the accompanying Suspension P-S Seismic Logger/Recorder Calibration Data Form with the same revision number. All data must be entered and the procedure signed by the technician performing the test.

1. Record all identification data on the form provided.
2. Connect function generator to data logger (such as OYO Model 170) using test cable
3. Connect the function generator to the frequency counter using test cable.
4. Set signal generator to target frequency specified on data form, 0.25 volt (amplitude is approximate, modify as necessary to yield less than full scale waveforms on

logger display) peak sine wave. Verify frequency using the counter and note actual frequency on the data form.

5. Set data logger to file length specified on data form and record a data file to disk. Note file name on data form.

6. Measure the duration of 9 complete sine wave cycles on the data file. This measurement must be made using the analysis program PSLOG.EXE version 1.00, and saved as a .sps pick file. Note the duration in milliseconds in the spaces provided on the data form. Calculate average recorded sine wave frequency for each channel pair (Hn, Hr, V) by dividing the duration by 9. Note the average frequency of each channel pair on the data form.

7. Repeat steps 4 through 6 until all target frequencies have been recorded, producing 6 separate data and pick files.

Criteria

The average frequency for the nine cycles (obtained by dividing 9 cycles by the duration in seconds) must be within plus or minus 1% of the actual frequency for each of the 6 records.

If the results are outside this range, the data logger must be marked with a GEOVision REJECT tag until it can be repaired and retested.

If results are acceptable affix label indicating the initials of the person performing the calibration, the date of calibration, and the due date for the next calibration (12 months).

Procedure Approval

Approved by:

John G. Diehl	President
Name	Title
Signature	July 21, 2008
	Date

Calibration Laboratory Approval (if required):

Name	Title
Signature	Date

EDISON ESI℠ Calibration Report

TEST NUMBER 573795

A SOUTHERN CALIFORNIA EDISON® Company

Metrology
7300 Fenwick Lane
Westminster, CA 92683
Toll Free: 866-723-2257

GEOVision Geophysical Services
1124 Olympic Drive
Corona, CA 92881-3390

NVLAP®
Lab Code: 105014-0

Manufacturer:	Oyo
Model Number:	3403
Description:	Unit, Suspension Telemetry
Asset Number:	160024
Serial Number:	160024
Cal. Procedure:	Customer
PO Number:	9200-090716-01

Ambient Temperature:	23° C
Ambient Humidity:	56% RH
Condition As Found:	In Tolerance
Condition As Left:	In Tolerance - No Adjustment
Calibration Date:	07/17/2009
Calibration Due Date:	07/17/2010
Calibration Interval:	12 Months

Remarks:
The unit was calibrated with the customer's procedure and specification's which have been reviewed by Metrology Engineering and documented in SCE Document M013987. The data can be found on pages 2 and 3 of this report with the original observation data on page 4.

Standards Utilized

I.D. No.	Manufacturer	Model No.	Description	Cal. Date	Due Date
S1-01252	Hewlett Packard	5335A OPT 010,203040	Counter, Universal	01/29/2009	07/29/2009
S1-01347	Hewlett Packard	3325A	Generator, Function, Synthesizer	05/04/2009	11/04/2009
S1-03686	Fluke	910	Standard, Frequency, Controlled, Gps	01/24/2009	01/24/2010

Calibration Performed By:			Quality Reviewer:	
Branson, Craig A CAB	Metrologist	714-895-0714		7/17/09
Name	Title	Phone	Name	Date

This report may not be reproduced, except in full, without written permission of this laboratory. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government. The results stated in this report relate only to the items tested or calibrated. Measurements reported herein are traceable to SI units via national standards maintained by NIST. This laboratory and calibration are in compliance with NVLAP laboratory accreditation criteria established by NIST/NVLAP under the specific scope of accreditation for lab code 105014-0, and in compliance with ISO/IEC 17025:2005, ANSI/NCSL Z540-1-1994 and 10CFR50, Appendix B. Where uncertainties are provided, the uncertainty stated is the expanded uncertainty of the measurement, where k=2.

Custom Specification Report

Test No. 573795
Asset No. 160024

Oyo 3403 Unit, Suspension Telemetry,

STEP NUM	FUNCTION TESTED	NOMINAL VALUE	AS FOUND	AS LEFT	Out of Tol	CALIBRATION TOLERANCE
	CH HN Frequency Sine Wave	50.00 Hz	50.00	Same		49.50 to 50.50 Hz [EMU 0.000250]
	"	100.0 Hz	100.0	Same		99.0 to 101.0 Hz [EMU 0.000500]
	"	200.0 Hz	200.2	Same		198.0 to 202.0 Hz [EMU 0.001000]
	"	500.0 Hz	500.0	Same		495.0 to 505.0 Hz [EMU 0.002500]
	"	1000 Hz	1000	Same		990 to 1010 Hz [EMU 0.005000]
	"	2000 Hz	2000	Same		1980 to 2020 Hz [EMU 0.010000]
	CH HR Frequency Sine Wave	50.00 Hz	50.00	Same		49.50 to 50.50 Hz [EMU 0.000250]
	"	100.0 Hz	100.0	Same		99.0 to 101.0 Hz [EMU 0.000500]
	"	200.0 Hz	200.0	Same		198.0 to 202.0 Hz [EMU 0.001000]
	"	500.0 Hz	500.0	Same		495.0 to 505.0 Hz [EMU 0.002500]
	"	1000 Hz	1001	Same		990 to 1010 Hz [EMU 0.005000]
	"	2000 Hz	2000	Same		1980 to 2020 Hz [EMU 0.010000]
	CH V Frequency Sine Wave	50.00 Hz	50.00	Same		49.50 to 50.50 Hz [EMU 0.000250]
	"	100.0 Hz	100.0	Same		99.0 to 101.0 Hz [EMU 0.000500]
	"	200.0 Hz	200.0	Same		198.0 to 202.0 Hz [EMU 0.001000]
	"	500.0 Hz	500.0	Same		495.0 to 505.0 Hz [EMU 0.002500]

Remarks:

MudCats CPM: Version 2.2.2 (Professional)
Src DUI: {9548AF3D-C74D-4C9F-AEEF-21EF560BC451} (o)
Doc DUI: {1269C0B2-3A13-416A-81BF-409D9887DDDA} (o)

ATTACHMENT 2
Page 1 of 2

Customer

Test No. 573795
Asset No. 160024

Custom Specification Report

Oyo 3403 Unit, Suspension Telemetry,

STEP NUM	FUNCTION TESTED	NOMINAL VALUE	AS FOUND	AS LEFT	Out of Tol	CALIBRATION TOLERANCE
	CH V Frequency Sine Wave	1000 Hz	1000	Same		990 to 1010 Hz [EMU 0.005000]
	"	2000 Hz	2000	Same		1980 to 2020 Hz [EMU 0.010000]

Remarks:

160024 Pg 4 of 4

~~160024~~ 573795

GEOVision geophysical services

SUSPENSION PS SEISMIC LOGGER/RECORDER CALIBRATION DATA FORM

INSTRUMENT DATA

System mfg.:	Oyo	Model no.:	3403
Serial no.:	160024	Calibration date:	7/17/2009
By:	Craig Branson	Due date:	7/17/2010
Counter mfg.:	Hewlett-Packard	Model no.:	5335A
Serial no.:	2626A09881	Calibration date:	1/29/2009
By:	SCE #S1-01252	Due date:	7/29/2009
Signal generator mfg.:	Hewlett-Packard	Model no.:	3325A
Serial no.:	2652A25647	Calibration date:	5/4/2009
By:	SCE #S1-01347	Due date:	11/4/2009

SYSTEM SETTINGS:

Gain:	8	
Filter	10KHz	
Range:	See sample period in table below	
Delay:	0	
Stack (1 std)	1	
System date = correct date and time	7/17/2009	1037

PROCEDURE:

Set sine wave frequency to target frequency with amplitude of approximately 0.25 volt peak
Note actual frequency on data form.
Set sample period and record data file to disk. Note file name on data form.
Pick duration of 9 cycles using PSLOG.EXE program, note duration on data form, and save as .sps file. Calculate average frequency for each channel pair and note on data form.

Average frequency must be within +/- 1% of actual frequency at all data points.

Maximum error ((AVG-ACT)/ACT*100)% As found 0.10% As left 0.10%

Target Frequency (Hz)	Actual Frequency (Hz)	Sample Period (microS)	File Name	Time for 9 cycles Hn (msec)	Average Frequency Hn (Hz)	Time for 9 cycles Hr (msec)	Average Frequency Hr (Hz)	Time for 9 cycles V (msec)	Average Frequency V (Hz)
50.00	50.00	200	501	180.00	50.00	180.00	50.00	180.00	50.00
100.0	100.0	100	502	90.00	100.0	90.00	100.0	90.00	100.0
200.0	200.0	50	503	44.95	200.2	45.00	200.0	45.00	200.0
500.0	500.0	20	504	18.00	500.0	18.00	500.0	18.00	500.0
1000	1000	10	505	9.000	1000	8.990	1001	9.000	1000
2000	2000	5	506	4.500	2000	4.500	2000	4.500	2000

Calibrated by: Craig Branson (Name) 7/17/2009 (Date) Craig Branson (Signature)

Witnessed by: Robert Steller (Name) 7/17/2009 (Date) (Signature)

Suspension PS Seismic Recorder/Logger Calibration Data Form Rev 2.0 July 21, 2008

APPENDIX D

EARTHSPECTIVES
250 Goddard
Irvine, California 92618
Phone: (949) 777-1270
Fax: (949) 777-1283

May 21, 2010

GeoDesign, Inc.
2121 Towne Center Place, Suite 130
Anaheim, California 92806

Attention: Mr. Chris Zadoorian

Dear Chris:

SPT Hammer Energy Measurement
Proposed Temecula Hospital
Temecula, California
GeoDesign Project No. Turner Const 1-02
ES Project No. 10053-254

INTRODUCTION

This letter report summarizes the results of EarthSpectives' (ES) SPT hammer energy measurements performed on May 18, 2010. It provides a description of the test program and results.

SPT energy measurements were accomplished using a Pile Driving Analyzer (PDA) system manufactured by Pile Dynamics, Inc. and was conducted in general accordance with ASTM 4945 and 6066 test standards. Results are summarized in Table 1, while more details regarding energy records are provided in Appendix A.

TESTING CONDITIONS

SPT hammer energy measurements were performed during Mud-Rotary drilling at Boring Location # 2 with a Mahew Drill Rig equipped with a hydraulic automatic trip hammer. HF 2-1/4 drill rod was used for soil sampling.

INSTRUMENTATION

SPT energy measurements were performed by placing a 2 ft instrumented section of drill rod at the top of the drill string between the hammer and the existing sampling rods. The instruments consist of two sets of accelerometers and strain transducers, mounted on opposite sides of the drill rod, with a view to evaluate normal and eccentric effects. The analyzer acquired and processed the signals during sampling, and provided real-time evaluations of the maximum SPT hammer transferred energy. The raw data were stored directly on a portable field computer for subsequent analysis in the office.

RESULTS

Results from SPT hammer energy measurements are summarized in Tables 1. It shows the Energy Transfer Ratio (ETR) at each sampling interval. ETR is the ratio of the measured maximum transferred energy to rated energy of the hammer which is the product of the weight of the hammer times the height of fall (140 lb x 30 inches = 4200 lb-in = 0.35 kip-ft).

TABLE 1 – SUMMARY OF SPT HAMMER ENERGY MEASUREMTS

SAMPLING DEPTH (FT)	AVERAGE SPT HAMMER EFFICIENCY (ENERGY TRANSFER RATIO)
10	64%,70%,65%
15	69%,75%,74%
20	70%,74%,71%
25	76%,77%,76%
30	75%,79%,77%
35	75%,80%,77%
40	74%,77%,76%
45	74%,79%,78%
50	75%,81%,79%
55	73%,80%,79%
60	76%,83%,81%
65	76%,80%,79%
70	73%,80%,78%
75	75%,81%,80%
80	69%,79%,74%
85	76%,80%,79%
90	76%,81%,78%
100	77%,82%,80%

NOTE: Numbers in each cell are Min, Max, and Avg efficiency for that sampling depth

Plot of the maximum transferred energy, energy transfer ratio, and blow rate is provided as function of blow number in Appendix A. Table immediately following the plot also provides the minimum, maximum, and average values at sampling dpeth. In general, the average ETR values at individual sampling depths ranged between 65% to 81% with an overall average value of 77.5%.

LIMITATIONS

Professional judgments represented in this report are based on evaluations of the technical information gathered, our understanding of the proposed construction, and our general experience in the geotechnical field. We do not guarantee the performance of the project in any respect, only that our engineering work and judgments are rendered while striving to meet the standard of care of our profession at this time.

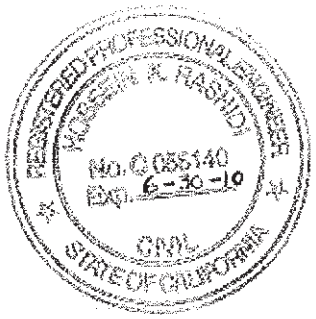
CLOSURE

It has been a pleasure serving GeoDesign, Inc. on this project and we look forward to working with you again. Please call if you have any questions.

Sincerely Submitted for EarthSpectives

Hossein Rashidi

Hossein K. Rashidi, Ph.D., P.E.
Principal Engineer



APPENDIX A

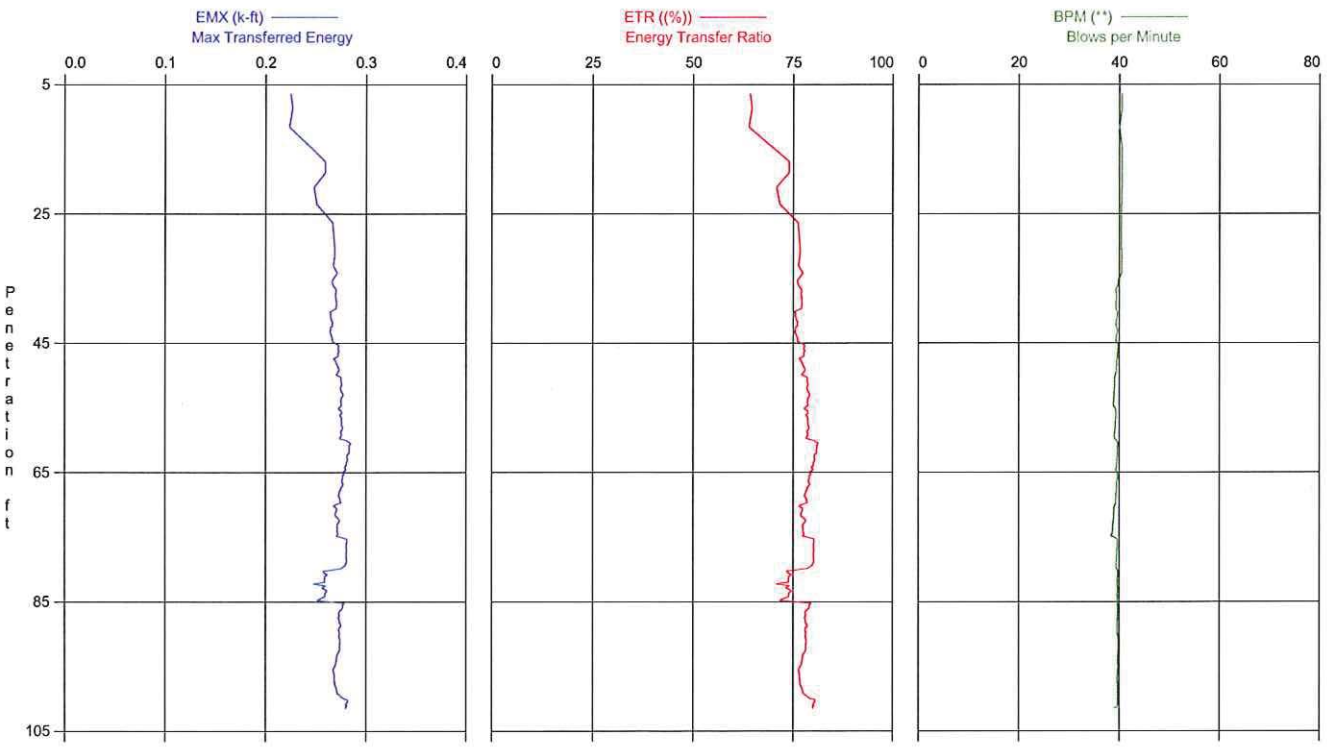
SPT FIELD RESULTS

EarthSpectives - Case Method Results

PDIPLOT Ver. 2009.1 - Printed: 21-May-2010

Test date: 18-May-2010

TURNER CONSTRUCTION PROJECT 1-02 - SPT HAMMER ENERGY MEASUREMENT - BORING HOLE # 2



TURNER CONSTRUCTION PROJECT 1-02 - SPT HAMMER ENERGY MEASUREMENT - BORING HSB-EN

SPT HAMMER ENERGY MEASUREMENT

OP: BA

Test date: 18-May-2010

AR: 1.41 in^2
LE: 107.00 ft
WS: 16,807.9 f/s

SP: 0.492 k/ft3
EM: 30,000 ksi
JC: 0.70

EMX: Max Transferred Energy
ETR: Energy Transfer Ratio
BPM: Blows per Minute
RMX: Max Case Method Capacity
RX5: Max Case Method Capacity (JC=0.5)

RX9: Max Case Method Capacity (JC=0.9)
CSX: Max Measured Compr. Stress
TSX: Tension Stress Maximum
CSI: Max F1 or F2 Compr. Stress

BL# end	depth ft	BLC bl/ft	TYPE	EMX k-ft	ETR (%)	BPM **	RMX kips	RX5 kips	RX9 kips	CSX ksi	TSX ksi	CSI ksi
16	10.00	3	AV13	0.2	64.0	40.6	2.6	2.7	2.5	41.5	19.5	41.7
			MAX	0.2	65.1	40.7	4.4	4.7	4.0	44.3	21.0	44.6
			MIN	0.2	60.2	40.4	1.1	1.5	1.1	29.9	18.2	30.0
29	15.00	3	AV12	0.2	65.1	40.2	2.3	3.2	1.7	31.3	20.8	31.5
			MAX	0.2	69.8	40.8	6.4	13.9	3.5	33.3	22.4	33.8
			MIN	0.2	63.9	36.4	0.6	1.1	0.4	26.7	9.2	27.0
55	20.00	5	AV25	0.3	73.6	40.5	4.7	12.0	3.1	28.2	8.6	28.5
			MAX	0.3	75.1	40.8	10.1	17.0	4.4	29.2	15.8	29.6
			MIN	0.2	68.7	40.1	0.7	2.7	0.0	25.6	7.3	25.8
72	25.00	3	AV16	0.2	71.4	40.5	4.2	5.7	3.3	26.0	14.5	26.4
			MAX	0.3	73.6	40.7	8.3	14.9	6.0	30.2	15.8	30.3
			MIN	0.2	70.0	40.1	0.0	0.8	0.0	25.4	13.1	25.9
83	30.00	2	AV6	0.3	76.3	40.4	9.7	16.9	3.1	29.3	14.4	29.5
			MAX	0.3	76.7	40.6	14.2	20.5	8.0	30.4	15.0	30.6
			MIN	0.3	75.8	40.1	8.3	15.8	1.6	26.1	14.1	26.3
120	35.00	7	AV36	0.3	76.9	40.5	12.7	19.3	6.5	26.5	13.3	27.1
			MAX	0.3	79.0	40.6	15.2	21.8	8.6	28.0	17.5	28.2
			MIN	0.3	75.3	40.3	9.7	16.3	3.1	25.2	12.7	26.1
183	40.00	13	AV62	0.3	76.9	39.5	10.0	16.3	6.9	28.6	14.2	28.8
			MAX	0.3	79.1	40.0	14.1	19.2	13.0	29.3	19.1	29.6
			MIN	0.3	75.4	39.0	7.0	10.0	2.3	26.3	10.1	26.3
353	45.00	34	AV168	0.3	75.8	39.5	9.3	12.3	8.7	26.7	12.7	26.8
			MAX	0.3	77.1	39.8	11.9	18.8	10.1	28.3	14.9	28.4
			MIN	0.3	74.4	39.1	7.9	10.0	5.9	25.7	11.9	26.0
501	50.00	30	AV147	0.3	77.6	39.6	11.9	17.9	9.5	28.6	8.0	28.8
			MAX	0.3	79.3	40.3	17.2	23.4	13.1	29.5	14.4	29.7
			MIN	0.3	74.0	38.4	6.7	12.3	6.4	27.9	3.2	28.2
585	55.00	17	AV84	0.3	78.7	39.0	9.6	15.0	7.0	28.8	14.1	28.9
			MAX	0.3	80.8	39.2	13.3	20.2	10.0	29.4	15.2	29.8
			MIN	0.3	74.5	38.7	6.0	11.2	4.7	26.6	10.7	26.6
712	60.00	25	AV126	0.3	78.7	39.2	9.3	16.2	7.3	28.3	9.8	28.5
			MAX	0.3	79.9	39.5	13.6	20.5	9.4	33.3	15.1	33.7
			MIN	0.3	73.4	37.4	5.8	8.9	2.7	27.0	7.8	27.4
833	65.00	24	AV120	0.3	80.6	39.5	9.9	11.9	9.7	33.7	12.9	33.9
			MAX	0.3	82.5	40.0	12.5	16.2	12.5	34.5	15.2	34.7
			MIN	0.3	75.8	38.6	5.0	8.1	2.0	29.2	11.5	29.4
1007	70.00	35	AV172	0.3	78.7	39.5	9.8	13.0	9.4	29.1	7.1	29.2
			MAX	0.3	80.4	39.9	13.9	18.4	13.9	29.9	12.1	31.1
			MIN	0.3	75.8	39.1	4.8	10.9	2.4	28.5	4.5	28.5
1133	75.00	25	AV125	0.3	77.5	38.8	5.9	12.6	3.9	31.8	8.7	32.2
			MAX	0.3	79.5	39.1	7.8	14.9	5.6	33.9	11.7	33.9
			MIN	0.3	73.2	36.7	3.3	8.9	2.7	26.3	5.9	26.6
1222	80.00	18	AV88	0.3	80.2	39.5	7.3	15.0	5.1	29.3	9.2	29.5
			MAX	0.3	81.2	39.7	9.2	16.8	7.2	29.8	12.5	30.1
			MIN	0.3	75.4	39.2	5.0	12.0	2.0	25.5	5.7	25.6
1381	85.00	32	AV156	0.3	73.7	39.6	6.5	11.3	2.8	25.6	9.2	26.2
			MAX	0.3	78.9	39.8	8.9	14.8	5.5	29.6	13.1	30.3
			MIN	0.2	68.6	39.2	4.7	9.0	1.7	22.7	7.6	23.5
1518	90.00	27	AV136	0.3	78.5	39.6	6.9	13.8	5.9	28.8	7.6	29.1
			MAX	0.3	80.4	39.8	9.9	16.2	9.9	32.9	12.8	33.1
			MIN	0.3	76.3	39.1	5.0	11.9	2.8	28.2	3.4	28.6
1639	100.00	12	AV120	0.3	77.5	39.7	7.4	14.2	6.4	33.1	6.3	33.4
			MAX	0.3	80.9	40.0	12.0	19.1	8.4	34.4	11.6	34.5
			MIN	0.3	75.5	39.5	4.6	11.4	2.4	31.8	2.4	32.2

TURNER CONSTRUCTION PROJECT 1-02 - SPT HAMMER ENERGY MEASUREMENT - BORING HOLE ENERGY MEASUREMENT
OP: BA
Test date: 18-May-2010

BL# end	depth ft	BLC bl/ft	TYPE	EMX k-ft	ETR (%)	BPM **	RMX kips	RX5 kips	RX9 kips	CSX ksi	TSX ksi	CSI ksi
1740	101.50	67	AV101	0.3	80.4	39.6	9.2	13.5	7.0	33.7	8.6	34.0
			MAX	0.3	81.9	39.9	12.8	15.3	12.8	34.4	12.1	34.6
			MIN	0.3	77.1	34.9	5.9	12.0	1.5	32.5	5.8	33.0
			Average	0.3	77.5	39.5	8.6	13.7	6.8	29.5	9.9	29.7
			Maximum	0.3	82.5	40.8	17.2	23.4	13.9	44.3	22.4	44.6
			Minimum	0.2	60.2	34.9	0.0	0.8	0.0	22.7	2.4	23.5

Total number of blows analyzed: 1713

Time Summary

Drive	16 seconds	8:18:35 AM - 8:18:51 AM (5/18/2010) BN 2 - 13
Stop	11 minutes 47 seconds	8:18:51 AM - 8:30:38 AM
Drive	16 seconds	8:30:38 AM - 8:30:54 AM BN 16 - 27
Stop	16 minutes 26 seconds	8:30:54 AM - 8:47:20 AM
Drive	35 seconds	8:47:20 AM - 8:47:55 AM BN 29 - 53
Stop	10 minutes 8 seconds	8:47:55 AM - 8:58:03 AM
Drive	22 seconds	8:58:03 AM - 8:58:25 AM BN 55 - 70
Stop	18 minutes 1 second	8:58:25 AM - 9:16:26 AM
Drive	7 seconds	9:16:26 AM - 9:16:33 AM BN 72 - 77
Stop	18 minutes 4 seconds	9:16:33 AM - 9:34:37 AM
Drive	52 seconds	9:34:37 AM - 9:35:29 AM BN 83 - 118
Stop	19 minutes 1 second	9:35:29 AM - 9:54:30 AM
Drive	1 minute 33 seconds	9:54:30 AM - 9:56:03 AM BN 120 - 181
Stop	19 minutes 17 seconds	9:56:03 AM - 10:15:20 AM
Drive	2 minutes 6 seconds	10:15:20 AM - 10:17:26 AM BN 183 - 351
Stop	24 minutes 12 seconds	10:17:26 AM - 10:41:38 AM
Drive	3 minutes 42 seconds	10:41:38 AM - 10:45:20 AM BN 353 - 499
Stop	20 minutes 48 seconds	10:45:20 AM - 11:06:08 AM
Drive	2 minutes 8 seconds	11:06:08 AM - 11:08:16 AM BN 501 - 584
Stop	27 minutes 4 seconds	11:08:16 AM - 11:35:20 AM
Drive	3 minutes 22 seconds	11:35:20 AM - 11:38:42 AM BN 585 - 710
Stop	27 minutes 42 seconds	11:38:42 AM - 12:06:24 PM
Drive	3 minutes 1 second	12:06:24 PM - 12:09:25 PM BN 712 - 831
Stop	25 minutes 30 seconds	12:09:25 PM - 12:34:55 PM
Drive	4 minutes 20 seconds	12:34:55 PM - 12:39:15 PM BN 833 - 1004
Stop	23 minutes 54 seconds	12:39:15 PM - 1:03:09 PM
Drive	3 minutes 12 seconds	1:03:09 PM - 1:06:21 PM BN 1007 - 1131
Stop	22 minutes 13 seconds	1:06:21 PM - 1:28:34 PM
Drive	2 minutes 13 seconds	1:28:34 PM - 1:30:47 PM BN 1133 - 1220
Stop	14 minutes 3 seconds	1:30:47 PM - 1:44:50 PM
Drive	1 minute 57 seconds	1:44:50 PM - 1:46:47 PM BN 1222 - 1378
Stop	16 minutes 49 seconds	1:46:47 PM - 2:03:36 PM
Drive	3 minutes 24 seconds	2:03:36 PM - 2:07:00 PM BN 1381 - 1516
Stop	19 minutes 33 seconds	2:07:00 PM - 2:26:33 PM
Drive	2 minutes 59 seconds	2:26:33 PM - 2:29:32 PM BN 1518 - 1637
Stop	24 minutes 36 seconds	2:29:32 PM - 2:54:08 PM
Drive	2 minutes 33 seconds	2:54:08 PM - 2:56:41 PM BN 1639 - 1740

Total time [6:38:06] = (Driving [0:38:58] + Stop [5:59:08])

APPENDIX E

NEIC: Earthquake Search Results

U N I T E D S T A T E S G E O L O G I C A L S U R V E Y

E A R T H Q U A K E D A T A B A S E

FILE CREATED: Wed Aug 4 02:06:12 2010
Circle Search Earthquakes= 145
Circle Center Point Latitude: 33.480N Longitude: 117.107W
Radius: 100.000 km
Catalog Used: CDMG
Date Range: 1769 to 1973
Magnitude Range: 4.5 - 9.5
Data Selection: California (CDMG)

CATALOG SOURCE	DATE YEAR MO DA	ORIGIN TIME	***COORDINATES*** LAT	LONG	DEPTH km	STD DEV	*******MAGNITUDES******* Ofc mb	Ms	CONTRIBUTED VALUES	F-E REG	STA	***INFORMATION*** IEMMDIP NFAOEDF TFP	PHENOMENA DTSVNWG PED	RADIAL DIST km
CDMG	1800 11 22	2130	33.000	-117.300			6.5		6.5UKCDMG	043	0E	7....3.	.....	56
CDMG	1812 12 08	15	33.700	-117.900			6.9		6.9UKCDMG	043	0D	7....3.	.....	77
CDMG	1862 05 27	20	32.700	-117.200			5.9		5.9UKCDMG	045	0C	7....3.	.....	86
CDMG	1889 02 07	0520	34.100	-116.700			5.3		5.3UKCDMG	043	0D	6....3.	.....	78
CDMG	1890 02 09	1206	33.400	-116.300			6.3		6.3UKCDMG	043	0D	6....3.	.....	75
CDMG	1892 05 28	1115	33.200	-116.200			6.3		6.3UKCDMG	043	0D	6....3.	.....	89
CDMG	1892 06 14	1325	34.200	-117.500			4.9		4.9UKCDMG	043	0C	6....3.	.....	87
CDMG	1894 10 23	2303	32.800	-116.800			5.7		5.7UKCDMG	045	0C	7....3.	.....	80
CDMG	1899 07 22	0046	34.200	-117.400			5.5		5.5UKCDMG	043	0D	7....3.	.....	84
CDMG	1899 07 22	2032	34.300	-117.500			6.5		6.5UKCDMG	043	0D	8....3.	.....	97
CDMG	1899 12 25	1225	33.800	-117.000			6.6		6.6UKCDMG	043	0A	9....3.	.....	36
CDMG	1902 06 11	0245	33.700	-117.100			4.5		4.5UKTO	043		5....3.	.....	24
CDMG	1906 03 03	2025	33.000	-117.000			4.5		4.5UKTO	043		5....3.	.....	54
CDMG	1907 09 20	0154	34.200	-117.100			6.0		6.0MLRI	043		7....3.	.....	79
CDMG	1910 04 11	0757	33.700	-117.400			5.0		5.0UKTO	043		.F...3.	.....	36
CDMG	1910 05 13	0620	33.700	-117.400			5.0		5.0UKTO	043		5....3.	.....	36
CDMG	1910 05 15	1547	33.700	-117.400			6.0		6.0MLRI	043		7....3.	.....	36
CDMG	1911 08 11	2340	33.800	-116.700			4.5		4.5UKTO	043		5....3.	.....	51
CDMG	1916 09 30	0211	33.500	-116.500			5.0		5.0UKTO	043		5....3.	.....	56
CDMG	1918 04 21	223225	33.750	-117.000			6.8		6.8MLGR	043		9D...3.	.....	31
CDMG	1918 06 06	2232	33.750	-117.000			5.0		5.0UKTO	043		5....3.	.....	31
CDMG	1920 01 01	0235	33.200	-116.700			5.0		5.0UKTO	043		6....3.	.....	48
CDMG	1923 06 30	0022	34.000	-117.000			4.5		4.5UKTO	043		5....3.	.....	58
CDMG	1923 07 23	073026	34.000	-117.250			6.2		6.2MLGR	043		7....3.	.....	59
CDMG	1925 08 08	1013	33.500	-117.000			4.5		4.5UKTO	043		5....3.	.....	10
CDMG	1930 01 16	002433.90	34.180	-116.920			5.2		5.2MLEH	043		7....3.	.....	79
CDMG	1930 01 16	003403.60	34.180	-116.920			5.1		5.1MLEH	043		7....3.	.....	79
CDMG	1933 03 11	015407.80	P 33.617	-117.967			6.3		6.3MLPAS	043	A	9D...3.	.....	81
CDMG	1933 03 11	0204	P 33.750	-118.083			4.9		4.9MLPAS	043	C	.....3.	.....	95
CDMG	1933 03 11	0209	P 33.750	-118.083			5.0		5.0MLPAS	043	C	.....3.	.....	95
CDMG	1933 03 11	0210	P 33.750	-118.083			4.6		4.6MLPAS	043	C	.....3.	.....	95
CDMG	1933 03 11	0216	P 33.750	-118.083			4.8		4.8MLPAS	043	C	.....3.	.....	95
CDMG	1933 03 11	0217	P 33.600	-118.000			4.5		4.5MLPAS	043	E	.....3.	.....	83
CDMG	1933 03 11	0227	P 33.750	-118.083			4.6		4.6MLPAS	043	C	.....3.	.....	95
CDMG	1933 03 11	0230	P 33.750	-118.083			5.1		5.1MLPAS	043	C	.....3.	.....	95
CDMG	1933 03 11	0259	P 33.750	-118.083			4.6		4.6MLPAS	043	C	.....3.	.....	95
CDMG	1933 03 11	0323	P 33.750	-118.083			5.0		5.0MLPAS	043	C	.....3.	.....	95
CDMG	1933 03 11	0436	P 33.750	-118.083			4.6		4.6MLPAS	043	C	.....3.	.....	95
CDMG	1933 03 11	0439	P 33.750	-118.083			4.9		4.9MLPAS	043	C	.....3.	.....	95
CDMG	1933 03 11	0440	P 33.750	-118.083			4.7		4.7MLPAS	043	C	.....3.	.....	95
CDMG	1933 03 11	051022	P 33.700	-118.067			5.1		5.1MLPAS	043	C	.....3.	.....	92
CDMG	1933 03 11	0513	P 33.750	-118.083			4.7		4.7MLPAS	043	C	.....3.	.....	95
CDMG	1933 03 11	051804	P 33.575	-117.983			5.2		5.2MLPAS	043	C	.....3.	.....	81
CDMG	1933 03 11	065803	P 33.683	-118.050			5.5		5.5MLPAS	043	C	.....3.	.....	90
CDMG	1933 03 11	0808	P 33.750	-118.083			4.5		4.5MLPAS	043	C	.....3.	.....	95
CDMG	1933 03 11	085457	P 33.700	-118.067			5.1		5.1MLPAS	043	C	.....3.	.....	92
CDMG	1933 03 11	0910	P 33.750	-118.083			5.1		5.1MLPAS	043	C	.....3.	.....	95
CDMG	1933 03 11	1104	P 33.750	-118.133			4.6		4.6MLPAS	043	C	.....3.	.....	99
CDMG	1933 03 11	1653	P 33.750	-118.083			4.8		4.8MLPAS	043	C	.....3.	.....	95
CDMG	1933 03 12	0616	P 33.750	-118.083			4.6		4.6MLPAS	043	C	.....3.	.....	95
CDMG	1933 03 12	1738	P 33.750	-118.083			4.5		4.5MLPAS	043	C	.....3.	.....	95
CDMG	1933 03 12	2354	P 33.750	-118.083			4.5		4.5MLPAS	043	C	.....3.	.....	95
CDMG	1933 03 13	0432	P 33.750	-118.083			4.7		4.7MLPAS	043	C	.....3.	.....	95
CDMG	1933 03 13	131828	P 33.750	-118.083			5.3		5.3MLPAS	043	C	4....3.	.....	95
CDMG	1933 03 14	1219	P 33.750	-118.083			4.5		4.5MLPAS	043	C	.....3.	.....	95
CDMG	1933 03 14	190150	P 33.617	-118.017			5.1		5.1MLPAS	043	C	.....3.	.....	85
CDMG	1933 03 15	111332	P 33.617	-118.017			4.9		4.9MLPAS	043	C	4....3.	.....	85
CDMG	1933 08 06	0332	P 33.333	-116.300			4.7		4.7MLPAS	043	C	4....3.	.....	76
CDMG	1934 01 09	1410	P 34.100	-117.683			4.5		4.5MLPAS	043	A	5....3.	.....	86
CDMG	1934 01 20	2117	P 33.617	-118.117			4.5		4.5MLPAS	043	B	4....3.	.....	94
CDMG	1935 09 03	0647	P 34.033	-117.317			4.5		4.5MLPAS	043	B	4....3.	.....	64
CDMG	1935 10 24	144807.60	P 34.100	-116.800			5.1		5.1MLPAS	043	A	5....3.	.....	74

| | | |

NEIC: Earthquake Search Results

U N I T E D S T A T E S G E O L O G I C A L S U R V E Y

E A R T H Q U A K E D A T A B A S E

FILE CREATED: Wed Aug 4 02:04:57 2010
Circle Search Earthquakes= 77
Circle Center Point Latitude: 33.480N Longitude: 117.107W
Radius: 100.000 km
Catalog Used: PDE
Date Range: 1974/01/01 to 2010/07/31
Magnitude Range: 4.5 - 9.5
Data Selection: Historical & Preliminary Data

CATALOG SOURCE	DATE YEAR MO DA	ORIGIN TIME	***COORDINATES*** LAT	LONG	DEPTH km	STD DEV	*******MAGNITUDES******* Ofc mb	Ms	CONTRIBUTED VALUES	F-E REG	STA	***INFORMATION*** IEMMDIP NFAOEDF TFP PED	PHENOMENA DTSVNWG	RADIAL DIST km
PDE	1975 08 02	001407.70P	33.517	-116.550	13		4.7|4.6| |	|4.7MLPAS	|043	031	.F...4P	.....	51
PDE	1979 06 29	055320.50P	34.250	-116.900	6		4.5|4.1| |	|4.5MLPAS	|043	034	6D...4P	.....	87
PDE	1979 06 30	003411.60P	34.249	-116.900	10		4.9|4.6| |4.8MLBRK	|4.9MLPAS	|043	066	6D...4P	.....	87
PDE	1980 02 25	104738.70P	33.517	-116.550	6		5.6|5.1|4.7Z|5.6MLBRK	|5.5MLPAS	|043	113	6D...3P	.....	51
PDE	1982 03 22	085328.60P	33.050	-116.217	5G		4.5|4.4| |	|4.5MLPAS	|043	039	4F...4P	.....	95
PDE	1982 06 15	234921.30P	33.550	-116.667	12G		4.8|4.5| |4.8MLBRK	|4.8MLPAS	|043	061	5FU..3P	.....	41
PDE	1983 06 29	080836.40P	32.633	-117.383	5G		4.6|4.4| |	|4.6MLPAS	|045	038	6DU..4P	.....	97
PDE	1984 08 06	081436.50P	33.980	-116.710	14G		4.5|4.0| |4.5MLBRK	|4.3MLPAS	|043	026	5F...3P	.....	66
PDE	1984 10 10	212258.80P	33.140	-116.500	12G		4.6|4.3| |4.6MLBRK	|4.5MLPAS	|043	042	4F...3P	.....	67
PDE	1985 10 02	234412.40P	34.030	-117.250	15		4.8|4.1| |4.7MLBRK	|4.8MLPAS	|043	053	5FU..4P	.....	62
PDE	1986 07 08	092044.50P	34.000	-116.610	12		6.1|5.8|6.0Z|6.1Mw01028	|6.0MLPAS	|043	300	7CUM.3B	.....S	73
PDE	1986 07 13	134708.20P	32.970	-117.870	10		5.3|5.6|5.8Z|	|5.3MLPAS	|045	268	6CUM.4P	.....S	90
PDE	1986 07 13	140133 P	32.990	-117.850	12		4.6|4.8| |	|4.6MLPAS	|045	039	.....4P	.....	87
PDE	1986 10 15	022847.70P	33.950	-116.570	9		4.7|4.3| |4.1MLBRK	|4.7MLPAS	|043	037	5F...4P	.....	72
PDE	1988 06 26	150458.40P	34.140	-117.710	8		4.6|4.5| |	|4.6MLPAS	|043	070	5FU..4P	.....	91
PDE	1988 11 20	053928.60P	33.510	-118.070	6G		4.6|5.0| |4.6MLBRK	|4.5MLPAS	|043	093	5FU..3P	.....	89
PDE	1988 12 16	055304.90P	33.980	-116.680	8		5.2|4.8| |5.2MLBRK	|4.8MLPAS	|043	063	5FU..3P	.....	68
PDE	1989 04 07	200730.20P	33.620	-117.900	13		4.6|5.0| |4.6MLBRK	|4.5MLPAS	|043	074	6DU..3P	.....	75
PDE	1989 12 28	094108.10P	34.190	-117.390	15		4.5| | |4.2MLBRK	|4.5MLPAS	|043	037	4F...4P	.....	82
PDE	1990 02 28	234336.60P	34.140	-117.700	5		5.7|5.5|5.5Z|6.2MLBRK	|5.7MwHRV	|043	191	7CUM.4B	.....	91
PDE	1990 03 01	032303 P	34.150	-117.720	11		4.8|4.3| |4.8MLBRK	|4.7MLPAS	|043	052	.F...3P	.....	93
PDE	1990 03 02	172625.40P	34.140	-117.690	6		4.6|4.5| |4.6MLBRK	|4.6MLPAS	|043	051	.F...3P	.....	90
PDE	1990 04 17	223227.20P	34.110	-117.720	4		4.7|4.5| |4.7MLBRK	|4.6MLPAS	|043	056	6D...3P	.....	89
PDE	1992 04 23	022529.85P	33.957	-116.317	11		4.6| | |4.6MLGS	|4.6MLPAS	|043	036	.F...3P	.....	90
PDE	1992 04 23	045023.22P	33.961	-116.318	12		6.1|5.7|6.3Z|6.1Mw01032	|6.1MLPAS	|043	392	7CUM.3B	.....	90
PDE	1992 04 23	051009.38P	34.012	-116.325	3		4.6| | |	|4.6MLGS	|043	032	.....4P	.....	93
PDE	1992 05 04	161949.71P	33.942	-116.304	12		4.8|4.4| |	|4.8MDPAS	|043	069	5F...4P	.....	90
PDE	1992 05 06	023843.33P	33.943	-116.315	7		4.9|4.4| |4.9MLBRK	|4.5MDPAS	|043	062	5F...3P	.....	89
PDE	1992 05 18	154417.96P	33.951	-116.338	7		4.9|4.6| |	|4.9MDPAS	|043	072	5F...4P	.....	88
PDE	1992 06 28	123640.60P	34.139	-116.431	10		5.1|5.0| |	|5.1MDPAS	|043	082	.....4P	.....	96
PDE	1992 06 28	132605.14P	34.162	-116.405	6G		4.9|4.7| |	|4.9MLPAS	|043	047	.....4P	.....	99
PDE	1992 06 28	135045.71P	34.111	-116.410	0		4.9|4.6| |	|4.9MLPAS	|043	037	.....4P	.....	95
PDE	1992 06 28	144321 P	34.163	-116.855	6G		5.3|5.5|5.4Z|	|5.3MDPAS	|043	180	.F...4P	.....	79
PDE	1992 06 28	150530.70P	34.203	-116.827	5G		6.5|6.3|6.7Z|6.5MwHRV	|6.9MeGS	|043	464	8CUM.3B	.....S	84
PDE	1992 06 28	152429.31P	34.211	-116.760	6G		4.5|4.9| |	|4.5MLPAS	|043	019	.F...4P	.....	87
PDE	1992 06 28	170131.91P	34.178	-116.922	13		4.7|5.0| |	|4.7MLPAS	|043	098	.F...4P	.....	79
PDE	1992 06 28	170557.54P	34.256	-116.912	8		4.6|4.6| |	|4.6MLPAS	|043	042	.F...4P	.....	87
PDE	1992 06 28	211316.46P	34.095	-116.427	3		4.6|4.3| |	|4.6MDPAS	|043	028	.....4P	.....	92
PDE	1992 06 29	140837.70P	34.106	-116.402	11		4.9|4.9| |	|4.9MLPAS	|043	092	.F...4P	.....	95
PDE	1992 06 29	141338.78P	34.108	-116.404	9		5.4|5.2|4.9Z|5.4MwHRV	|5.4MLPAS	|043	127	4F.M.3B	.....	95
PDE	1992 06 29	160142.77P	33.876	-116.267	1		5.5|4.8| |5.5MwHRV	|5.2MLPAS	|043	079	.F.M.3B	.....	89
PDE	1992 06 29	164141.92P	34.250	-116.719	1		4.9|4.2| |	|4.9MLPAS	|043	041	.....4P	.....	92
PDE	1992 06 30	143811.59P	34.004	-116.361	0		5.2|5.1|4.6Z|5.2MwHRV	|4.8MLPAS	|043	097	...M.3B	.....	90
PDE	1992 06 30	212254.44P	34.130	-116.734	12		4.8|4.5|4.0Z|	|4.8MLPAS	|043	041	3F...4P	.....	79
PDE	1992 07 06	120059.19P	34.092	-116.369	1		4.5|4.2| |	|4.5MLPAS	|043	021	.....4P	.....	96
PDE	1992 07 09	014357.60P	34.239	-116.837	0		5.3|5.6|5.2Z|5.7MLBRK	|5.3MwHRV	|043	272	6C.M.4B	.....S	87
PDE	1992 07 24	181436.23P	33.902	-116.284	9		5.0|4.4|4.7Z|	|5.0MLPAS	|043	061	5F...4P	.....	89
PDE	1992 07 25	043159.97P	33.937	-116.306	5		4.9|4.6| |	|4.9MLPAS	|043	066	5F...4P	.....	89
PDE	1992 07 28	182703.88P	34.112	-116.415	0		4.6|4.4| |	|4.6MLPAS	|043	053	4F...4P	.....	94
PDE	1992 08 15	082414.66P	34.088	-116.402	0		4.8|4.2| |4.5MLGS	|4.8MLPAS	|043	048	5F...4P	.....	93
PDE	1992 08 17	204152.10P	34.195	-116.862	11		5.3|4.5|4.5Z|4.7MLGS	|5.3MLPAS	|043	085	5F...4P	.....	82
PDE	1992 09 15	084711.27P	34.064	-116.361	9		5.2|4.8|4.8Z|5.6MLBRK	|5.2MwHRV	|043	118	5F.M.4B	.....	94
PDE	1992 11 27	160057.48P	34.340	-116.900	1		5.6|5.1|4.8Z|5.6MLBRK	|5.3MLPAS	|043	151	6DU..3P	.....	97
PDE	1992 12 04	125942.10P	34.361	-116.913	0		4.5|3.9| |4.5MLBRK	|4.2MLPAS	|043	050	3F...3P	.....	99
PDE	1993 08 21	014638.40P	34.029	-116.321	9		5.0|4.6| |4.7MLGS	|5.0MLPAS	|043	112	5F...4P	.....	94
PDE	1994 04 06	190104.06P	34.192	-117.095	7		5.0|4.4| |4.8MLPAS	|5.0MLBRK	|043	126	5F...4P	.....	78
PDE	1995 05 07	110333.04P	33.905	-116.288	10		5.0|4.4|4.3Z|4.8MLPAS	|5.0MLBRK	|043	161	5F...4P	.....	89
PDE	1997 07 26	031455.99P	33.399	-116.354	11		4.8| | |4.8MLPAS	|	|043	064	4F...3P	.....	70
PDE	1997 12 05	170438.92P	34.097	-116.996	4		4.5| | |4.5MLBRK	|4.1MLPAS	|043	057	.F...3P	.....	69
PDE	1998 03 11	121851.83P	34.024	-117.230	14		4.5|4.0| |4.5MLPAS	|4.4MLBRK	|043	066	.F...3P	.....	61
PDE	1998 10 01	181815.96P	34.112	-116.920	4		4.7|4.4| |4.7MLPAS	|	|043	058	.F...3P	.....	72
PDE	1998 10 27	010840.65P	34.323	-116.844	5		4.5|4.3| |4.9MLPAS	|4.5MwBRK	|043	071	5F.M.4P	.....	96

| | | |

APPENDIX F

SPT Liquefaction Spreadsheet

JOB NAME	Prpoosed Temecula Hospital	Boring	GDI-1		
DATE	8/11/2010	*y*	120	pcf	
BY	CJZ	GW level	27	ft	
CHECKED BY		HHGL	12.9	ft	
DATE		GS Elevation	1054.5		
		LFFE	1057.4		

Magnitue	a max
6.84	0.88

MSF 1.27

Total Settlement 0.98 INCHES

Elevation (MSL)	Depth (feet)	Soil Type	Nfield	Boulanger and Idriss (2006)	σo' (psf) current	σo' (psf) HHGWL	C_E	C_N	C_B	C_S	C_R	$(N_1)_{60}$	Fines Correction			ΔN	$(N_1)_{60}$	CRR	Rd	CSR	FOS	SETTLEMENT (%)	SETTLEMENT (inches)
					psf	psf	energy	stress	5" diam	w/out liner	rod	interim Corr.	%fines	Alpha	Beta			1998 eq. <N=30					
1053.5	1	SM	5		120	468	1.32	1.75	1.05	1.2	0.75		15	2.50	1.05				1.000	**0.116**	2.00		
1053	1.5	SM	5		180	528	1.32	1.71	1.05	1.2	0.75		15	2.50	1.05				0.998	**0.155**	2.00		
1052.5	2	SM	5		240	588	1.32	1.68	1.05	1.2	0.75		15	2.50	1.05				0.997	**0.185**	2.00		
1052	2.5	SM	5		300	648	1.32	1.64	1.05	1.2	0.75		15	2.50	1.05				0.996	**0.209**	2.00		
1051.5	3	SM	5		360	708	1.32	1.61	1.05	1.2	0.75		15	2.50	1.05				0.995	**0.230**	2.00		
1051	3.5	SM	5		420	768	1.32	1.57	1.05	1.2	0.75		15	2.50	1.05				0.994	**0.247**	2.00		
1050.5	4	SM	5		480	828	1.32	1.54	1.05	1.2	0.75		15	2.50	1.05				0.993	**0.261**	2.00		
1050	4.5	SM	5		540	888	1.32	1.51	1.05	1.2	0.75		15	2.50	1.05				0.991	**0.274**	2.00		
1049.5	5	SM	18		600	948	1.32	1.48	1.05	1.2	0.75		15	2.50	1.05				0.990	**0.285**	2.00		
1049	5.5	SM	18		660	1008	1.32	1.46	1.05	1.2	0.75		15	2.50	1.05				0.989	**0.294**	2.00		
1048.5	6	SM	18		720	1068	1.32	1.43	1.05	1.2	0.75		15	2.50	1.05				0.988	**0.302**	2.00		
1048	6.5	SM	18		780	1128	1.32	1.40	1.05	1.2	0.75		15	2.50	1.05				0.987	**0.310**	2.00		
1047.5	7	SM	18		840	1188	1.32	1.38	1.05	1.2	0.75		15	2.50	1.05				0.986	**0.316**	2.00		
1047	7.5	ML	18		900	1248	1.32	1.35	1.05	1.2	0.75		50	5.00	1.20				0.985	**0.322**	2.00		
1046.5	8	ML	18		960	1308	1.32	1.33	1.05	1.2	0.75		50	5.00	1.20				0.983	**0.328**	2.00		
1046	8.5	ML	21		1020	1368	1.32	1.31	1.05	1.2	0.75		50	5.00	1.20				0.982	**0.333**	2.00		
1045.5	9	ML	21		1080	1428	1.32	1.29	1.05	1.2	0.75		50	5.00	1.20				0.981	**0.337**	2.00		
1045	9.5	ML	21		1140	1488	1.32	1.27	1.05	1.2	0.75		50	5.00	1.20				0.980	**0.341**	2.00		
1044.5	10	ML	21		1200	1548	1.32	1.24	1.05	1.2	0.75		50	5.00	1.20				0.979	**0.345**	2.00		
1044	10.5	ML	21		1260	1608	1.32	1.23	1.05	1.2	0.75		50	5.00	1.20				0.978	**0.348**	2.00		
1043.5	11	ML	21		1320	1668	1.32	1.21	1.05	1.2	0.75		50	5.00	1.20				0.977	**0.351**	2.00		
1043	11.5	ML	21		1380	1728	1.32	1.19	1.05	1.2	0.75		50	5.00	1.20				0.976	**0.354**	2.00		
1042.5	12	ML	21		1440	1788	1.32	1.17	1.05	1.2	0.75		41	5.00	1.20				0.975	**0.356**	2.00		
1042	12.5	ML	12		1500	1848	1.32	1.15	1.05	1.2	0.75		41	5.00	1.20				0.974	**0.359**	2.00		
1041.5	13	ML	12		1560	1902	1.32	1.14	1.05	1.2	0.85	19.3	41	5.00	1.20	8.9	**28**	0.374	0.973	**0.362**	1.31	0.000	0.002
1041	13.5	ML	12		1620	1931	1.32	1.12	1.05	1.2	0.85	19.0	41	5.00	1.20	8.8	**28**	0.362	0.972	**0.370**	1.24	0.001	0.005
1040.5	14	ML	12		1680	1960	1.32	1.10	1.05	1.2	0.85	18.7	41	5.00	1.20	8.7	**27**	0.352	0.971	**0.378**	1.18	0.001	0.005
1040	14.5	ML	12		1740	1989	1.32	1.09	1.05	1.2	0.85	18.5	41	5.00	1.20	8.7	**27**	0.342	0.970	**0.385**	1.13	0.001	0.005
1039.5	15	ML	12		1800	2018	1.32	1.07	1.05	1.2	0.85	18.2	41	5.00	1.20	8.6	**27**	0.334	0.969	**0.392**	1.08	0.002	0.010
1039	15.5	CL	7	YES	1860	2047	1.32	1.06	1.05	1.2	0.85	10.5	41	5.00	1.20	7.1	**18**	0.187	0.967	**0.399**	0.59	0.016	0.000
1038.5	16	CL	7	YES	1920	2076	1.32	1.04	1.05	1.2	0.85	10.3	35	5.00	1.20	7.1	**17**	0.185	0.966	**0.406**	0.58	0.016	0.000
1038	16.5	CL	7	YES	1980	2105	1.32	1.03	1.05	1.2	0.85	10.2	35	5.00	1.20	7.0	**17**	0.183	0.965	**0.412**	0.56	0.016	0.000
1037.5	17	CL	7	YES	2040	2134	1.32	1.02	1.05	1.2	0.85	10.1	35	5.00	1.20	7.0	**17**	0.182	0.964	**0.419**	0.55	0.016	0.000
1037	17.5	CL	7	YES	2100	2163	1.32	1.00	1.05	1.2	0.85	9.9	35	5.00	1.20	7.0	**17**	0.180	0.963	**0.425**	0.54	0.016	0.000
1036.5	18	CL	7	YES	2160	2192	1.32	0.99	1.05	1.2	0.85	9.8	35	5.00	1.20	7.0	**17**	0.178	0.962	**0.430**	0.52	0.016	0.000
1036	18.5	CL	7	YES	2220	2221	1.32	0.98	1.05	1.2	0.85	9.7	35	5.00	1.20	6.9	**17**	0.177	0.961	**0.436**	0.51	0.016	0.000
1035.5	19	CL	7	YES	2280	2250	1.32	0.97	1.05	1.2	0.85	9.6	35	5.00	1.20	6.9	**16**	0.175	0.959	**0.441**	0.50	0.016	0.000
1035	19.5	CL	7	YES	2340	2279	1.32	0.95	1.05	1.2	0.85	9.4	35	5.00	1.20	6.9	**16**	0.174	0.958	**0.447**	0.49	0.016	0.000
1034.5	20	CL	7	YES	2400	2308	1.32	0.94	1.05	1.2	0.95	10.4	35	5.00	1.20	7.1	**18**	0.186	0.957	**0.452**	0.52	0.016	0.000
1034	20.5	ML	10		2460	2337	1.32	0.93	1.05	1.2	0.95	14.7	35	5.00	1.20	7.9	**23**	0.252	0.956	**0.457**	0.70	0.014	0.084
1033.5	21	ML	10		2520	2366	1.32	0.92	1.05	1.2	0.95	14.5	35	5.00	1.20	7.9	**22**	0.249	0.954	**0.462**	0.68	0.014	0.084
1033	21.5	ML	10		2580	2395	1.32	0.91	1.05	1.2	0.95	14.4	35	5.00	1.20	7.9	**22**	0.246	0.953	**0.466**	0.67	0.014	0.084
1032.5	22	ML	10		2640	2424	1.32	0.90	1.05	1.2	0.95	14.2	35	5.00	1.20	7.8	**22**	0.243	0.951	**0.471**	0.65	0.014	0.084
1032	22.5	ML	10	YES	2700	2453	1.32	0.89	1.05	1.2	0.95	14.0	35	5.00	1.20	7.8	**22**	0.240	0.950	**0.475**	0.64	0.014	0.000
1031.5	23	ML	10	YES	2760	2482	1.32	0.88	1.05	1.2	0.95	13.9	35	5.00	1.20	7.8	**22**	0.237	0.948	**0.479**	0.63	0.014	0.000
1031	23.5	ML	10	YES	2820	2511	1.32	0.87	1.05	1.2	0.95	13.7	35	5.00	1.20	7.7	**21**	0.235	0.947	**0.483**	0.61	0.014	0.000
1030.5	24	ML	10	YES	2880	2540	1.32	0.86	1.05	1.2	0.95	13.6	35	5.00	1.20	7.7	**21**	0.232	0.945	**0.487**	0.60	0.014	0.000
1030	24.5	ML	19		2940	2569	1.32	0.85	1.05	1.2	0.95	25.5	43	5.00	1.20	10.1	**36**		0.944	**0.490**	2.00		
1029.5	25	ML	19		3000	2598	1.32	0.84	1.05	1.2	0.95	25.2	43	5.00	1.20	10.0	**35**		0.942	**0.494**	2.00		
1029	25.5	ML	19		3060	2627	1.32	0.83	1.05	1.2	0.95	25.0	43	5.00	1.20	10.0	**35**		0.940	**0.497**	2.00		
1028.5	26	ML	19		3120	2656	1.32	0.82	1.05	1.2	0.95	24.7	43	5.00	1.20	9.9	**35**		0.938	**0.500**	2.00		
1028	26.5	ML	19		3180	2685	1.32	0.81	1.05	1.2	0.95	24.4	43	5.00	1.20	9.9	**34**		0.936	**0.503**	2.00		
1027.5	27	ML	19		3240	2714	1.32	0.81	1.05	1.2	0.95	24.2	43	5.00	1.20	9.8	**34**		0.934	**0.506**	2.00		
1027	27.5	SP	32		3269	2743	1.32	0.80	1.05	1.2	0.95	40.5	5	0.00	1.00	0.1	**41**		0.932	**0.509**	2.00		
1026.5	28	SP	32		3298	2772	1.32	0.80	1.05	1.2	0.95	40.3	5	0.00	1.00	0.1	**40**		0.930	**0.512**	2.00		
1026	28.5	SP	32		3327	2801	1.32	0.79	1.05	1.2	0.95	40.1	5	0.00	1.00	0.1	**40**		0.928	**0.514**	2.00		
1025.5	29	SP	32		3356	2830	1.32	0.79	1.05	1.2	0.95	39.9	5	0.00	1.00	0.1	**40**		0.925	**0.517**	2.00		
1025	29.5	SP	32		3385	2859	1.32	0.79	1.05	1.2	0.95	39.7	5	0.00	1.00	0.0	**40**		0.923	**0.519**	2.00		

1024.5	30	SP	32		3414	2888	1.32	0.78	1.05	1.2	0.95	39.5	5	0.00	1.00	0.0	40		0.921	0.521	2.00		
1024	30.5	SP	46		3443	2917	1.32	0.78	1.05	1.2	0.95	56.6	5	0.00	1.00	0.1	57		0.918	0.523	2.00		
1023.5	31	SP	46		3472	2946	1.32	0.77	1.05	1.2	0.95	56.3	5	0.00	1.00	0.1	56		0.915	0.525	2.00		
1023	31.5	SP	46		3501	2975	1.32	0.77	1.05	1.2	0.95	56.0	5	0.00	1.00	0.1	56		0.913	0.527	2.00		
1022.5	32	SP	46		3530	3004	1.32	0.77	1.05	1.2	0.95	55.7	5	0.00	1.00	0.1	56		0.910	0.528	2.00		
1022	32.5	SP	46		3559	3033	1.32	0.76	1.05	1.2	0.95	55.5	5	0.00	1.00	0.1	56		0.907	0.529	2.00		
1021.5	33	SP	26		3588	3062	1.32	0.76	1.05	1.2	1	32.9	5	0.00	1.00	0.0	33		0.904	0.531	2.00		
1021	33.5	SP	26		3617	3091	1.32	0.76	1.05	1.2	1	32.7	5	0.00	1.00	0.0	33		0.901	0.532	2.00		
1020.5	34	SP	26		3646	3120	1.32	0.75	1.05	1.2	1	32.5	5	0.00	1.00	0.0	33		0.897	0.533	2.00		
1020	34.5	SP	26		3675	3149	1.32	0.75	1.05	1.2	1	32.4	5	0.00	1.00	0.0	32		0.894	0.534	2.00		
1019.5	35	ML	14	YES	3704	3178	1.32	0.75	1.05	1.2	1	17.4	35	5.00	1.20	8.5	26	0.309	0.891	0.534	0.73	0.011	0.000
1019	35.5	ML	14	YES	3733	3207	1.32	0.74	1.05	1.2	1	17.3	35	5.00	1.20	8.5	26	0.307	0.887	0.535	0.73	0.011	0.000
1018.5	36	ML	14	YES	3762	3236	1.32	0.74	1.05	1.2	1	17.2	35	5.00	1.20	8.4	26	0.305	0.883	0.536	0.72	0.011	0.000
1018	36.5	ML	14	YES	3791	3265	1.32	0.74	1.05	1.2	1	17.1	35	5.00	1.20	8.4	26	0.303	0.880	0.536	0.72	0.011	0.000
1017.5	37	ML	14	YES	3820	3294	1.32	0.73	1.05	1.2	1	17.0	35	5.00	1.20	8.4	25	0.301	0.876	0.536	0.71	0.011	0.000
1017	37.5	ML	14	YES	3849	3323	1.32	0.73	1.05	1.2	1	17.0	35	5.00	1.20	8.4	25	0.299	0.872	0.536	0.71	0.011	0.000
1016.5	38	ML	14	YES	3878	3352	1.32	0.73	1.05	1.2	1	16.9	35	5.00	1.20	8.4	25	0.297	0.868	0.536	0.70	0.011	0.000
1016	38.5	ML	14	YES	3907	3381	1.32	0.72	1.05	1.2	1	16.8	35	5.00	1.20	8.4	25	0.295	0.864	0.536	0.70	0.011	0.000
1015.5	39	GP	33		3936	3410	1.32	0.72	1.05	1.2	1	39.5	5	0.00	1.00	0.0	40		0.860	0.536	2.00		
1015	39.5	GP	33		3965	3439	1.32	0.72	1.05	1.2	1	39.3	5	0.00	1.00	0.0	39		0.855	0.535	2.00		
1014.5	40	SP	36		3994	3468	1.32	0.71	1.05	1.2	1	42.7	5	0.00	1.00	0.1	43		0.851	0.535	2.00		
1014	40.5	SP	36		4023	3497	1.32	0.71	1.05	1.2	1	42.5	5	0.00	1.00	0.1	43		0.847	0.534	2.00		
1013.5	41	SP	36		4052	3526	1.32	0.71	1.05	1.2	1	42.3	5	0.00	1.00	0.1	42		0.842	0.534	2.00		
1013	41.5	SP	36		4081	3555	1.32	0.70	1.05	1.2	1	42.1	5	0.00	1.00	0.1	42		0.837	0.533	2.00		
1012.5	42	SP	36		4110	3584	1.32	0.70	1.05	1.2	1	41.9	5	0.00	1.00	0.1	42		0.833	0.532	2.00		
1012	42.5	SP	36		4139	3613	1.32	0.70	1.05	1.2	1	41.7	5	0.00	1.00	0.1	42		0.828	0.531	2.00		
1011.5	43	ML	5	YES	4168	3642	1.32	0.69	1.05	1.2	1	5.8	35	5.00	1.20	6.2	12	0.130	0.823	0.530	0.31	0.023	0.000
1011	43.5	ML	5	YES	4197	3671	1.32	0.69	1.05	1.2	1	5.7	35	5.00	1.20	6.1	12	0.130	0.818	0.528	0.31	0.023	0.000
1010.5	44	ML	5	YES	4226	3700	1.32	0.69	1.05	1.2	1	5.7	35	5.00	1.20	6.1	12	0.130	0.814	0.527	0.31	0.023	0.000
1010	44.5	ML	5	YES	4255	3729	1.32	0.69	1.05	1.2	1	5.7	35	5.00	1.20	6.1	12	0.130	0.809	0.526	0.31	0.023	0.000
1009.5	45	SP	23		4284	3758	1.32	0.68	1.05	1.2	1	26.1	23	4.10	1.10	6.8	33		0.804	0.524	2.00		
1009	45.5	SP	23		4313	3787	1.32	0.68	1.05	1.2	1	26.0	23	4.10	1.10	6.8	33		0.799	0.523	2.00		
1008.5	46	SP	23		4342	3816	1.32	0.68	1.05	1.2	1	25.9	23	4.10	1.10	6.7	33		0.794	0.521	2.00		
1008	46.5	SP	23		4371	3845	1.32	0.67	1.05	1.2	1	25.8	23	4.10	1.10	6.7	33		0.788	0.520	2.00		
1007.5	47	SP	29		4400	3874	1.32	0.67	1.05	1.2	1	32.4	5	0.00	1.00	0.0	32		0.783	0.518	2.00		
1007	47.5	SP	29		4429	3903	1.32	0.67	1.05	1.2	1	32.2	5	0.00	1.00	0.0	32		0.778	0.516	2.00		
1006.5	48	SP	29		4458	3932	1.32	0.67	1.05	1.2	1	32.1	5	0.00	1.00	0.0	32		0.773	0.514	2.00		
1006	48.5	SP	29		4487	3961	1.32	0.66	1.05	1.2	1	32.0	5	0.00	1.00	0.0	32		0.768	0.512	2.00		
1005.5	49	SP	29		4516	3990	1.32	0.66	1.05	1.2	1	31.8	5	0.00	1.00	0.0	32		0.763	0.511	2.00		
1005	49.5	SP	29		4545	4019	1.32	0.66	1.05	1.2	1	31.7	5	0.00	1.00	0.0	32		0.758	0.509	2.00		
1004.5	50	SP	29		4574	4048	1.32	0.65	1.05	1.2	1	31.6	5	0.00	1.00	0.0	32		0.753	0.507	2.00		
1004	50.5	SP	19		4603	4077	1.32	0.65	1.05	1.2	1	20.6	8	0.39	1.01	0.7	21	0.232	0.748	0.505	0.58	0.014	0.084
1003.5	51	SP	19		4632	4106	1.32	0.65	1.05	1.2	1	20.5	8	0.39	1.01	0.7	21	0.231	0.743	0.503	0.58	0.014	0.084
1003	51.5	SP	19		4661	4135	1.32	0.65	1.05	1.2	1	20.4	8	0.39	1.01	0.7	21	0.230	0.738	0.501	0.58	0.014	0.084
1002.5	52	SP	19		4690	4164	1.32	0.64	1.05	1.2	1	20.3	8	0.39	1.01	0.7	21	0.229	0.733	0.498	0.58	0.014	0.084
1002	52.5	SP	19		4719	4193	1.32	0.64	1.05	1.2	1	20.3	8	0.39	1.01	0.7	21	0.228	0.728	0.496	0.58	0.014	0.084
1001.5	53	SP	26		4748	4222	1.32	0.64	1.05	1.2	1	27.6	8	0.39	1.01	0.8	28	0.385	0.723	0.494	0.99	0.011	0.066
1001	53.5	SP	26		4777	4251	1.32	0.64	1.05	1.2	1	27.5	8	0.39	1.01	0.8	28	0.381	0.718	0.492	0.98	0.011	0.066
1000.5	54	SP	26		4806	4280	1.32	0.63	1.05	1.2	1	27.4	8	0.39	1.01	0.8	28	0.377	0.713	0.490	0.97	0.011	0.066
1000	54.5	CL	6	YES	4835	4309	1.32	0.63	1.05	1.2	1	6.3	27	4.48	1.13	5.3	12	0.127	0.708	0.488	0.33	0.023	0.000
999.5	55	CL	6	YES	4864	4338	1.32	0.63	1.05	1.2	1	6.3	27	4.48	1.13	5.3	12	0.127	0.703	0.486	0.33	0.023	0.000
999	55.5	CL	6	YES	4893	4367	1.32	0.63	1.05	1.2	1	6.3	27	4.48	1.13	5.3	12	0.127	0.699	0.484	0.33	0.023	0.000
998.5	56	CL	6	YES	4922	4396	1.32	0.62	1.05	1.2	1	6.2	27	4.48	1.13	5.3	12	0.127	0.694	0.482	0.33	0.023	0.000
998	56.5	CL	6	YES	4951	4425	1.32	0.62	1.05	1.2	1	6.2	27	4.48	1.13	5.3	11	0.126	0.689	0.480	0.33	0.023	0.000
997.5	57	CL	8	YES	4980	4454	1.32	0.62	1.05	1.2	1	8.2	27	4.48	1.13	5.6	14	0.148	0.685	0.478	0.39	0.020	0.000
997	57.5	CL	8	YES	5009	4483	1.32	0.62	1.05	1.2	1	8.2	27	4.48	1.13	5.5	14	0.148	0.680	0.476	0.39	0.020	0.000
996.5	58	CL	8	YES	5038	4512	1.32	0.61	1.05	1.2	1	8.2	27	4.48	1.13	5.5	14	0.147	0.676	0.474	0.39	0.020	0.000
996	58.5	CL	8	YES	5067	4541	1.32	0.61	1.05	1.2	1	8.1	27	4.48	1.13	5.5	14	0.147	0.672	0.472	0.39	0.020	0.000
995.5	59	SP	38		5096	4570	1.32	0.61	1.05	1.2	1	38.5	5	0.00	1.00	0.0	39		0.668	0.470	2.00		
995	59.5	SP	38		5125	4599	1.32	0.61	1.05	1.2	1	38.4	5	0.00	1.00	0.0	38		0.663	0.468	2.00		
994.5	60	SP	38		5154	4628	1.32	0.61	1.05	1.2	1	38.2	5	0.00	1.00	0.0	38		0.659	0.466	2.00		
994	60.5	SP	38		5183	4657	1.32	0.60	1.05	1.2	1	38.1	5	0.00	1.00	0.0	38		0.655	0.464	2.00		
993.5	61	SP	38		5212	4686	1.32	0.60	1.05	1.2	1	38.0	5	0.00	1.00	0.0	38		0.651	0.462	2.00		
993	61.5	SP	38		5241	4715	1.32	0.60	1.05	1.2	1	37.8	5	0.00	1.00	0.0	38		0.647	0.460	2.00		
992.5	62	SP	38		5270	4744	1.32	0.60	1.05	1.2	1	37.7	5	0.00	1.00	0.0	38		0.644	0.458	2.00		
992	62.5	SP	38		5299	4773	1.32	0.59	1.05	1.2	1	37.5	5	0.00	1.00	0.0	38		0.640	0.456	2.00		
991.5	63	SP	38		5328	4802	1.32	0.59	1.05	1.2	1	37.4	5	0.00	1.00	0.0	37		0.636	0.455	2.00		
991	63.5	SP	50		5357	4831	1.32	0.59	1.05	1.2	1	49.0	5	0.00	1.00	0.1	49		0.632	0.453	2.00		
990.5	64	SP	50		5386	4860	1.32	0.59	1.05	1.2	1	48.8	5	0.00	1.00	0.1	49		0.629	0.451	2.00		
990	64.5	SP	50		5415	4889	1.32	0.59	1.05	1.2	1	48.7	5	0.00	1.00	0.1	49		0.625	0.450	2.00		
989.5	65	SP	50		5444	4918	1.32	0.58	1.05	1.2	1	48.5	5	0.00	1.00	0.1	49		0.622	0.448	2.00		
989	65.5	SP	50		5473	4947	1.32	0.58	1.05	1.2	1	48.3	5	0.00	1.00	0.1	48		0.619	0.446	2.00		
988.5	66	SP	50		5502	4976	1.32	0.58	1.05	1.2	1	48.1	5	0.00	1.00	0.1	48		0.616	0.445	2.00		
988	66.5	SP	50		5531	5005	1.32	0.58	1.05	1.2	1	48.0	5	0.00	1.00	0.1	48		0.612	0.443	2.00		
987.5	67	SP	50		5560	5034	1.32	0.57	1.05	1.2	1	47.8	5	0.00	1.00	0.1	48		0.609	0.442	2.00		
987	67.5	SP	50		5589	5063	1.32	0.57	1.05	1.2	1	47.6	5	0.00	1.00	0.1	48		0.606	0.440	2.00		
986.5	68	SP	50		5618	5092	1.32	0.57	1.05	1.2	1	47.5	5	0.00	1.00	0.1	48		0.603	0.439	2.00		
986	68.5	SP	50		5647	5121	1.32	0.57	1.05	1.2	1	47.3	5	0.00	1.00	0.1	47		0.600	0.438	2.00		
985.5	69	SP	50		5676	5150	1.32	0.57	1.05	1.2	1	47.1	5	0.00	1.00	0.1	47		0.597	0.436	2.00		
985	69.5	SP	50		5705	5179	1.32	0.56	1.05	1.2	1	47.0	5	0.00	1.00	0.1	47		0.595	0.435	2.00		
984.5	70	SP	50		5734	5208	1.32	0.56	1.05	1.2	1	46.8	5	0.00	1.00	0.1	47		0.592	0.433	2.00		
																							0.983

SPT Liquefaction Spreadsheet

JOB NAME	Prpoosed Temecula Hospital	Boring	GDI-1-A		
DATE	8/4/2010	*y*	120	pcf	
BY	CJZ	GW level	23.5	ft	
CHECKED BY		HHGL	15.9	ft	
DATE		GS Elevation	1051.5		
		LFFE	1057.4		

Magnitue	a max
6.84	0.88

MSF 1.27

Total Settlement 1.06 INCHES

Elevation (MSL)	Depth (feet)	Soil Type	Nfield	Boulanger and Idriss (2006)	σo' (psf) current	σo' (psf) HHGWL	C_E	C_N	C_B	C_S	C_R	$(N_1)_{60}$	Fines Correction			ΔN	$(N_1)_{60}$	CRR	Rd	CSR	FOS	SETTLEMENT (%)	SETTLEMENT (inches)
					psf	psf	energy	stress	5" diam	w/out liner	rod	interim Corr.	%fines	Alpha	Beta			1998 eq. <N=30					
1050.5	1	SP	15		120	828	1.32	1.75	1.05	1.2	0.75		5	0.00	1.00				1.000	**0.066**	2.00		
1050	1.5	SP	15		180	888	1.32	1.71	1.05	1.2	0.75		5	0.00	1.00				0.998	**0.092**	2.00		
1049.5	2	SP	15		240	948	1.32	1.68	1.05	1.2	0.75		5	0.00	1.00				0.997	**0.115**	2.00		
1049	2.5	SP	15		300	1008	1.32	1.64	1.05	1.2	0.75		5	0.00	1.00				0.996	**0.135**	2.00		
1048.5	3	SP	15		360	1068	1.32	1.61	1.05	1.2	0.75		5	0.00	1.00				0.995	**0.152**	2.00		
1048	3.5	SP	15		420	1128	1.32	1.57	1.05	1.2	0.75		5	0.00	1.00				0.994	**0.168**	2.00		
1047.5	4	SP	15		480	1188	1.32	1.54	1.05	1.2	0.75		5	0.00	1.00				0.993	**0.182**	2.00		
1047	4.5	SP	15		540	1248	1.32	1.51	1.05	1.2	0.75		5	0.00	1.00				0.991	**0.195**	2.00		
1046.5	5	SP	15		600	1308	1.32	1.48	1.05	1.2	0.75		5	0.00	1.00				0.990	**0.206**	2.00		
1046	5.5	SP	15		660	1368	1.32	1.46	1.05	1.2	0.75		5	0.00	1.00				0.989	**0.217**	2.00		
1045.5	6	SP	15		720	1428	1.32	1.43	1.05	1.2	0.75		5	0.00	1.00				0.988	**0.226**	2.00		
1045	6.5	SP	15		780	1488	1.32	1.40	1.05	1.2	0.75		5	0.00	1.00				0.987	**0.235**	2.00		
1044.5	7	SP	15		840	1548	1.32	1.38	1.05	1.2	0.75		5	0.00	1.00				0.986	**0.243**	2.00		
1044	7.5	ML	15		900	1608	1.32	1.35	1.05	1.2	0.75		35	5.00	1.20				0.985	**0.250**	2.00		
1043.5	8	ML	15		960	1668	1.32	1.33	1.05	1.2	0.75		35	5.00	1.20				0.983	**0.257**	2.00		
1043	8.5	SP	26		1020	1728	1.32	1.31	1.05	1.2	0.75		15	2.50	1.05				0.982	**0.263**	2.00		
1042.5	9	SP	26		1080	1788	1.32	1.29	1.05	1.2	0.75		5	0.00	1.00				0.981	**0.269**	2.00		
1042	9.5	SP	26		1140	1848	1.32	1.27	1.05	1.2	0.75		5	0.00	1.00				0.980	**0.275**	2.00		
1041.5	10	SP	26		1200	1908	1.32	1.24	1.05	1.2	0.75		5	0.00	1.00				0.979	**0.280**	2.00		
1041	10.5	SP	26		1260	1968	1.32	1.23	1.05	1.2	0.75		5	0.00	1.00				0.978	**0.284**	2.00		
1040.5	11	SP	26		1320	2028	1.32	1.21	1.05	1.2	0.75		5	0.00	1.00				0.977	**0.289**	2.00		
1040	11.5	SP	26		1380	2088	1.32	1.19	1.05	1.2	0.75		5	0.00	1.00				0.976	**0.293**	2.00		
1039.5	12	SP	26		1440	2148	1.32	1.17	1.05	1.2	0.75		5	0.00	1.00				0.975	**0.297**	2.00		
1039	12.5	SP	26		1500	2208	1.32	1.15	1.05	1.2	0.75		5	0.00	1.00				0.974	**0.300**	2.00		
1038.5	13	SP	26		1560	2268	1.32	1.14	1.05	1.2	0.85		5	0.00	1.00				0.973	**0.304**	2.00		
1038	13.5	SP	26		1620	2328	1.32	1.12	1.05	1.2	0.85		5	0.00	1.00				0.972	**0.307**	2.00		
1037.5	14	SP	26		1680	2388	1.32	1.10	1.05	1.2	0.85		5	0.00	1.00				0.971	**0.310**	2.00		
1037	14.5	SP	26		1740	2448	1.32	1.09	1.05	1.2	0.85		5	0.00	1.00				0.970	**0.313**	2.00		
1036.5	15	SP	26		1800	2508	1.32	1.07	1.05	1.2	0.85		5	0.00	1.00				0.969	**0.316**	2.00		
1036	15.5	ML	14		1860	2568	1.32	1.06	1.05	1.2	0.85		35	5.00	1.20				0.967	**0.318**	2.00		
1035.5	16	ML	14		1920	2622	1.32	1.04	1.05	1.2	0.85	20.7	35	5.00	1.20	9.1	**30**	0.454	0.966	**0.321**	1.79	0.000	0.000
1035	16.5	ML	14		1980	2651	1.32	1.03	1.05	1.2	0.85	20.4	35	5.00	1.20	9.1	**29**	0.434	0.965	**0.327**	1.68	0.000	0.000
1034.5	17	ML	14		2040	2680	1.32	1.02	1.05	1.2	0.85	20.1	35	5.00	1.20	9.0	**29**	0.417	0.964	**0.333**	1.58	0.000	0.001
1034	17.5	ML	14		2100	2709	1.32	1.00	1.05	1.2	0.85	19.9	35	5.00	1.20	9.0	**29**	0.403	0.963	**0.339**	1.50	0.000	0.001
1033.5	18	ML	10		2160	2738	1.32	0.99	1.05	1.2	0.85	14.0	35	5.00	1.20	7.8	**22**	0.239	0.962	**0.345**	0.88	0.014	0.084
1033	18.5	ML	10		2220	2767	1.32	0.98	1.05	1.2	0.85	13.8	35	5.00	1.20	7.8	**22**	0.236	0.961	**0.350**	0.85	0.014	0.084
1032.5	19	ML	10		2280	2796	1.32	0.97	1.05	1.2	0.85	13.7	35	5.00	1.20	7.7	**21**	0.233	0.959	**0.355**	0.83	0.014	0.084
1032	19.5	ML	10		2340	2825	1.32	0.95	1.05	1.2	0.85	13.5	35	5.00	1.20	7.7	**21**	0.231	0.958	**0.360**	0.81	0.014	0.084
1031.5	20	ML	10		2400	2854	1.32	0.94	1.05	1.2	0.95	14.9	35	5.00	1.20	8.0	**23**	0.255	0.957	**0.365**	0.88	0.014	0.084
1031	20.5	ML	10		2460	2883	1.32	0.93	1.05	1.2	0.95	14.7	35	5.00	1.20	7.9	**23**	0.252	0.956	**0.370**	0.86	0.014	0.084
1030.5	21	ML	10		2520	2912	1.32	0.92	1.05	1.2	0.95	14.5	35	5.00	1.20	7.9	**22**	0.249	0.954	**0.375**	0.84	0.014	0.084
1030	21.5	ML	10		2580	2941	1.32	0.91	1.05	1.2	0.95	14.4	35	5.00	1.20	7.9	**22**	0.246	0.953	**0.380**	0.82	0.014	0.084
1029.5	22	SM	10		2640	2970	1.32	0.90	1.05	1.2	0.95	14.2	15	2.50	1.05	3.2	**17**	0.185	0.951	**0.384**	0.61	0.016	0.096
1029	22.5	SM	10		2700	2999	1.32	0.89	1.05	1.2	0.95	14.0	15	2.50	1.05	3.2	**17**	0.183	0.950	**0.388**	0.60	0.016	0.096
1028.5	23	SM	10		2760	3028	1.32	0.88	1.05	1.2	0.95	13.9	15	2.50	1.05	3.2	**17**	0.181	0.948	**0.393**	0.58	0.016	0.096
1028	23.5	SM	10		2820	3057	1.32	0.87	1.05	1.2	0.95	13.7	15	2.50	1.05	3.2	**17**	0.180	0.947	**0.397**	0.57	0.016	0.096
1027.5	24	ML	6	YES	2849	3086	1.32	0.86	1.05	1.2	0.95	8.2	35	5.00	1.20	6.6	**15**	0.158	0.945	**0.401**	0.50	0.020	0.000
1027	24.5	ML	6	YES	2878	3115	1.32	0.86	1.05	1.2	0.95	8.1	35	5.00	1.20	6.6	**15**	0.158	0.944	**0.404**	0.49	0.020	0.000
1026.5	25	ML	6	YES	2907	3144	1.32	0.85	1.05	1.2	0.95	8.1	35	5.00	1.20	6.6	**15**	0.157	0.942	**0.408**	0.49	0.020	0.000
1026	25.5	ML	6	YES	2936	3173	1.32	0.85	1.05	1.2	0.95	8.1	35	5.00	1.20	6.6	**15**	0.157	0.940	**0.412**	0.48	0.020	0.000
1025.5	26	ML	6	YES	2965	3202	1.32	0.85	1.05	1.2	0.95	8.0	35	5.00	1.20	6.6	**15**	0.156	0.938	**0.415**	0.48	0.020	0.000
1025	26.5	ML	6	YES	2994	3231	1.32	0.84	1.05	1.2	0.95	8.0	35	5.00	1.20	6.6	**15**	0.156	0.936	**0.418**	0.47	0.020	0.000
1024.5	27	ML	6	YES	3023	3260	1.32	0.84	1.05	1.2	0.95	7.9	35	5.00	1.20	6.6	**15**	0.155	0.934	**0.422**	0.47	0.020	0.000
1024	27.5	ML	6	YES	3052	3289	1.32	0.83	1.05	1.2	0.95	7.9	35	5.00	1.20	6.6	**14**	0.155	0.932	**0.425**	0.46	0.020	0.000
1023.5	28	ML	6	YES	3081	3318	1.32	0.83	1.05	1.2	0.95	7.9	35	5.00	1.20	6.6	**14**	0.154	0.930	**0.428**	0.46	0.020	0.000
1023	28.5	ML	6	YES	3110	3347	1.32	0.82	1.05	1.2	0.95	7.8	11	1.28	1.03	1.5	**9**	0.107	0.928	**0.430**	0.31	0.027	0.000
1022.5	29	ML	6	YES	3139	3376	1.32	0.82	1.05	1.2	0.95	7.8	11	1.28	1.03	1.5	**9**	0.107	0.925	**0.433**	0.31	0.027	0.000
1022	29.5	ML	6	YES	3168	3405	1.32	0.82	1.05	1.2	0.95	7.7	35	5.00	1.20	6.5	**14**	0.153	0.923	**0.436**	0.44	0.020	0.000

1021.5	30	ML	6	YES	3197	3434	1.32	0.81	1.05	1.2	0.95	7.7	35	5.00	1.20	6.5	14	0.152	0.921	0.438	0.44	0.020	0.000
1021	30.5	SP	32		3226	3463	1.32	0.81	1.05	1.2	0.95	40.8	5	0.00	1.00	0.1	41		0.918	0.441	2.00		
1020.5	31	SP	32		3255	3492	1.32	0.80	1.05	1.2	0.95	40.6	5	0.00	1.00	0.1	41		0.915	0.443	2.00		
1020	31.5	SP	32		3284	3521	1.32	0.80	1.05	1.2	0.95	40.4	5	0.00	1.00	0.1	40		0.913	0.445	2.00		
1019.5	32	SP	32		3313	3550	1.32	0.80	1.05	1.2	0.95	40.2	5	0.00	1.00	0.1	40		0.910	0.447	2.00		
1019	32.5	SP	26		3342	3579	1.32	0.79	1.05	1.2	0.95	32.5	5	0.00	1.00	0.0	33		0.907	0.449	2.00		
1018.5	33	SP	26		3371	3608	1.32	0.79	1.05	1.2	1	34.1	5	0.00	1.00	0.0	34		0.904	0.450	2.00		
1018	33.5	SP	26		3400	3637	1.32	0.78	1.05	1.2	1	33.9	5	0.00	1.00	0.0	34		0.901	0.452	2.00		
1017.5	34	SP	26		3429	3666	1.32	0.78	1.05	1.2	1	33.7	5	0.00	1.00	0.0	34		0.897	0.453	2.00		
1017	34.5	SP	26		3458	3695	1.32	0.78	1.05	1.2	1	33.6	5	0.00	1.00	0.0	34		0.894	0.455	2.00		
1016.5	35	SP	26		3487	3724	1.32	0.77	1.05	1.2	1	33.4	5	0.00	1.00	0.0	33		0.891	0.456	2.00		
1016	35.5	SP	26		3516	3753	1.32	0.77	1.05	1.2	1	33.2	5	0.00	1.00	0.0	33		0.887	0.457	2.00		
1015.5	36	SP	26		3545	3782	1.32	0.77	1.05	1.2	1	33.1	5	0.00	1.00	0.0	33		0.883	0.458	2.00		
1015	36.5	SP	26		3574	3811	1.32	0.76	1.05	1.2	1	32.9	5	0.00	1.00	0.0	33		0.880	0.459	2.00		
1014.5	37	SP	26		3603	3840	1.32	0.76	1.05	1.2	1	32.8	5	0.00	1.00	0.0	33		0.876	0.460	2.00		
1014	37.5	SP	26		3632	3869	1.32	0.75	1.05	1.2	1	32.6	5	0.00	1.00	0.0	33		0.872	0.461	2.00		
1013.5	38	SP	26		3661	3898	1.32	0.75	1.05	1.2	1	32.5	14	2.30	1.04	3.7	36		0.868	0.461	2.00		
1013	38.5	SP	22		3690	3927	1.32	0.75	1.05	1.2	1	27.3	14	2.30	1.04	3.5	31		0.864	0.461	2.00		
1012.5	39	SP	22		3719	3956	1.32	0.74	1.05	1.2	1	27.2	14	2.30	1.04	3.5	31		0.860	0.462	2.00		
1012	39.5	SP	22		3748	3985	1.32	0.74	1.05	1.2	1	27.1	14	2.30	1.04	3.5	31		0.855	0.462	2.00		
1011.5	40	SP	22		3777	4014	1.32	0.74	1.05	1.2	1	27.0	14	2.30	1.04	3.5	30		0.851	0.462	2.00		
1011	40.5	SM	25		3806	4043	1.32	0.73	1.05	1.2	1	30.5	14	2.30	1.04	3.6	34		0.847	0.462	2.00		
1010.5	41	SM	25		3835	4072	1.32	0.73	1.05	1.2	1	30.4	15	2.50	1.05	4.0	34		0.842	0.462	2.00		
1010	41.5	SM	25		3864	4101	1.32	0.73	1.05	1.2	1	30.2	15	2.50	1.05	4.0	34		0.837	0.462	2.00		
1009.5	42	SM	25		3893	4130	1.32	0.72	1.05	1.2	1	30.1	15	2.50	1.05	3.9	34		0.833	0.461	2.00		
1009	42.5	SM	25		3922	4159	1.32	0.72	1.05	1.2	1	30.0	15	2.50	1.05	3.9	34		0.828	0.461	2.00		
1008.5	43	SP	31		3951	4188	1.32	0.72	1.05	1.2	1	37.0	15	2.50	1.05	4.3	41		0.823	0.461	2.00		
1008	43.5	SP	31		3980	4217	1.32	0.71	1.05	1.2	1	36.8	15	2.50	1.05	4.3	41		0.818	0.460	2.00		
1007.5	44	SP	31		4009	4246	1.32	0.71	1.05	1.2	1	36.7	15	2.50	1.05	4.3	41		0.814	0.459	2.00		
1007	44.5	SP	31		4038	4275	1.32	0.71	1.05	1.2	1	36.5	15	2.50	1.05	4.3	41		0.809	0.459	2.00		
1006.5	45	SP	31		4067	4304	1.32	0.70	1.05	1.2	1	36.3	15	2.50	1.05	4.2	41		0.804	0.458	2.00		
1006	45.5	SP	30		4096	4333	1.32	0.70	1.05	1.2	1	35.0	15	2.50	1.05	4.2	39		0.799	0.457	2.00		
1005.5	46	SP	30		4125	4362	1.32	0.70	1.05	1.2	1	34.9	15	2.50	1.05	4.2	39		0.794	0.456	2.00		
1005	46.5	SP	30		4154	4391	1.32	0.70	1.05	1.2	1	34.7	15	2.50	1.05	4.2	39		0.788	0.455	2.00		
1004.5	47	SP	30		4183	4420	1.32	0.69	1.05	1.2	1	34.6	15	2.50	1.05	4.2	39		0.783	0.454	2.00		
1004	47.5	SP	30		4212	4449	1.32	0.69	1.05	1.2	1	34.4	15	2.50	1.05	4.2	39		0.778	0.453	2.00		
1003.5	48	SP	27		4241	4478	1.32	0.69	1.05	1.2	1	30.8	15	2.50	1.05	4.0	35		0.773	0.452	2.00		
1003	48.5	SP	27		4270	4507	1.32	0.68	1.05	1.2	1	30.7	15	2.50	1.05	4.0	35		0.768	0.450	2.00		
1002.5	49	SP	27		4299	4536	1.32	0.68	1.05	1.2	1	30.6	15	2.50	1.05	4.0	35		0.763	0.449	2.00		
1002	49.5	SP	27		4328	4565	1.32	0.68	1.05	1.2	1	30.4	15	2.50	1.05	4.0	34		0.758	0.448	2.00		
1001.5	50	SP	27		4357	4594	1.32	0.68	1.05	1.2	1	30.3	15	2.50	1.05	4.0	34		0.753	0.446	2.00		
1001	50.5	SP	31		4386	4623	1.32	0.67	1.05	1.2	1	34.7	15	2.50	1.05	4.2	39		0.748	0.445	2.00		
1000.5	51	SP	31		4415	4652	1.32	0.67	1.05	1.2	1	34.5	15	2.50	1.05	4.2	39		0.743	0.444	2.00		
1000	51.5	SP	31		4444	4681	1.32	0.67	1.05	1.2	1	34.4	15	2.50	1.05	4.2	39		0.738	0.442	2.00		
999.5	52	SP	31		4473	4710	1.32	0.66	1.05	1.2	1	34.2	15	2.50	1.05	4.1	38		0.733	0.441	2.00		
999	52.5	SP	31		4502	4739	1.32	0.66	1.05	1.2	1	34.1	15	2.50	1.05	4.1	38		0.728	0.439	2.00		
998.5	53	SP	50		4531	4768	1.32	0.66	1.05	1.2	1	54.8	15	2.50	1.05	5.1	60		0.723	0.438	2.00		
998	53.5	SP	50		4560	4797	1.32	0.66	1.05	1.2	1	54.5	15	2.50	1.05	5.1	60		0.718	0.436	2.00		
997.5	54	SP	50		4589	4826	1.32	0.65	1.05	1.2	1	54.3	15	2.50	1.05	5.1	59		0.713	0.435	2.00		
997	54.5	SP	50		4618	4855	1.32	0.65	1.05	1.2	1	54.1	15	2.50	1.05	5.1	59		0.708	0.433	2.00		
996.5	55	SP	50		4647	4884	1.32	0.65	1.05	1.2	1	53.9	15	2.50	1.05	5.1	59		0.703	0.432	2.00		
996	55.5	SP	50		4676	4913	1.32	0.65	1.05	1.2	1	53.7	15	2.50	1.05	5.1	59		0.699	0.430	2.00		
995.5	56	SP	50		4705	4942	1.32	0.64	1.05	1.2	1	53.4	15	2.50	1.05	5.1	59		0.694	0.428	2.00		
995	56.5	SP	50		4734	4971	1.32	0.64	1.05	1.2	1	53.2	15	2.50	1.05	5.1	58		0.689	0.427	2.00		
994.5	57	SP	50		4763	5000	1.32	0.64	1.05	1.2	1	53.0	15	2.50	1.05	5.0	58		0.685	0.425	2.00		
994	57.5	SP	50		4792	5029	1.32	0.63	1.05	1.2	1	52.8	15	2.50	1.05	5.0	58		0.680	0.424	2.00		
993.5	58	SP	50		4821	5058	1.32	0.63	1.05	1.2	1	52.6	15	2.50	1.05	5.0	58		0.676	0.422	2.00		
993	58.5	SP	50		4850	5087	1.32	0.63	1.05	1.2	1	52.4	15	2.50	1.05	5.0	57		0.672	0.421	2.00		
992.5	59	SP	50		4879	5116	1.32	0.63	1.05	1.2	1	52.2	15	2.50	1.05	5.0	57		0.668	0.419	2.00		
992	59.5	SP	50		4908	5145	1.32	0.63	1.05	1.2	1	52.0	15	2.50	1.05	5.0	57		0.663	0.418	2.00		
991.5	60	SP	50		4937	5174	1.32	0.62	1.05	1.2	1	51.8	15	2.50	1.05	5.0	57		0.659	0.417	2.00		
991	60.5	SP	50		4966	5203	1.32	0.62	1.05	1.2	1	51.6	15	2.50	1.05	5.0	57		0.655	0.415	2.00		
990.5	61	SP	50		4995	5232	1.32	0.62	1.05	1.2	1	51.4	15	2.50	1.05	5.0	56		0.651	0.414	2.00		
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																							1.057

SPT Liquefaction Spreadsheet

JOB NAME	Prpoosed Temecula Hospital	Boring	GDI-2		
DATE	6/4/2010	*y*	120	pcf	
BY	CJZ	GW level	22	ft	
CHECKED BY		HHGL	16.4	ft	
DATE		GS Elevation	1051	(assumed)	
		LFFE	1057.4		
			Magnitue	a max	
			6.84	0.88	
		MSF	1.27		

Total Settlement 0.76 INCHES

Elevation (MSL)	Depth (feet)	Soil Type	Nfield	Boulanger and Idriss (2006)	σo' (psf) current	σo' (psf) HHGWL	C_E	C_N	C_B	C_S	C_R	$(N_1)_{60}$	Fines Correction			ΔN	$(N_1)_{60}$	CRR 1998 eq.	Rd	CSR	FOS	SETTLEMENT (%)	SETTLEMENT (inches)
					psf	psf	energy	stress	5" diam	w/out liner	rod	interim Corr.	%fines	Alpha	Beta		<N=30						
1050	1	SP	10		120	888	1.32	1.75	1.05	1.2	0.75		5	0.00	1.00				1.000	**0.061**	2.00		
1049.5	1.5	SP	10		180	948	1.32	1.71	1.05	1.2	0.75		5	0.00	1.00				0.998	**0.086**	2.00		
1049	2	SP	10		240	1008	1.32	1.68	1.05	1.2	0.75		5	0.00	1.00				0.997	**0.108**	2.00		
1048.5	2.5	SP	10		300	1068	1.32	1.64	1.05	1.2	0.75		5	0.00	1.00				0.996	**0.127**	2.00		
1048	3	SP	10		360	1128	1.32	1.61	1.05	1.2	0.75		5	0.00	1.00				0.995	**0.144**	2.00		
1047.5	3.5	SP	10		420	1188	1.32	1.57	1.05	1.2	0.75		5	0.00	1.00				0.994	**0.160**	2.00		
1047	4	SP	10		480	1248	1.32	1.54	1.05	1.2	0.75		5	0.00	1.00				0.993	**0.173**	2.00		
1046.5	4.5	SP	10		540	1308	1.32	1.51	1.05	1.2	0.75		5	0.00	1.00				0.991	**0.186**	2.00		
1046	5	SP	10		600	1368	1.32	1.48	1.05	1.2	0.75		5	0.00	1.00				0.990	**0.197**	2.00		
1045.5	5.5	SP	10		660	1428	1.32	1.46	1.05	1.2	0.75		5	0.00	1.00				0.989	**0.208**	2.00		
1045	6	SP	10		720	1488	1.32	1.43	1.05	1.2	0.75		5	0.00	1.00				0.988	**0.217**	2.00		
1044.5	6.5	SP	10		780	1548	1.32	1.40	1.05	1.2	0.75		5	0.00	1.00				0.987	**0.226**	2.00		
1044	7	SP	10		840	1608	1.32	1.38	1.05	1.2	0.75		5	0.00	1.00				0.986	**0.234**	2.00		
1043.5	7.5	ML	10		900	1668	1.32	1.35	1.05	1.2	0.75		35	5.00	1.20				0.985	**0.241**	2.00		
1043	8	ML	10		960	1728	1.32	1.33	1.05	1.2	0.75		35	5.00	1.20				0.983	**0.248**	2.00		
1042.5	8.5	SP	10		1020	1788	1.32	1.31	1.05	1.2	0.75		5	0.00	1.00				0.982	**0.254**	2.00		
1042	9	SP	10		1080	1848	1.32	1.29	1.05	1.2	0.75		5	0.00	1.00				0.981	**0.260**	2.00		
1041.5	9.5	SP	10		1140	1908	1.32	1.27	1.05	1.2	0.75		5	0.00	1.00				0.980	**0.266**	2.00		
1041	10	ML	10	YES	1200	1968	1.32	1.24	1.05	1.2	0.75		5	0.00	1.00				0.979	**0.271**	2.00		
1040.5	10.5	ML	10	YES	1260	2028	1.32	1.23	1.05	1.2	0.75		5	0.00	1.00				0.978	**0.276**	2.00		
1040	11	ML	10	YES	1320	2088	1.32	1.21	1.05	1.2	0.75		5	0.00	1.00				0.977	**0.280**	2.00		
1039.5	11.5	ML	10	YES	1380	2148	1.32	1.19	1.05	1.2	0.75		5	0.00	1.00				0.976	**0.285**	2.00		
1039	12	ML	10	YES	1440	2208	1.32	1.17	1.05	1.2	0.75		5	0.00	1.00				0.975	**0.289**	2.00		
1038.5	12.5	ML	10	YES	1500	2268	1.32	1.15	1.05	1.2	0.75		50	5.00	1.20				0.974	**0.292**	2.00		
1038	13	ML	10	YES	1560	2328	1.32	1.14	1.05	1.2	0.85		50	5.00	1.20				0.973	**0.296**	2.00		
1037.5	13.5	ML	10	YES	1620	2388	1.32	1.12	1.05	1.2	0.85		50	5.00	1.20				0.972	**0.299**	2.00		
1037	14	ML	10	YES	1680	2448	1.32	1.10	1.05	1.2	0.85		50	5.00	1.20				0.971	**0.302**	2.00		
1036.5	14.5	ML	10	YES	1740	2508	1.32	1.09	1.05	1.2	0.85		50	5.00	1.20				0.970	**0.305**	2.00		
1036	15	ML	10	YES	1800	2568	1.32	1.07	1.05	1.2	0.85		50	5.00	1.20				0.969	**0.308**	2.00		
1035.5	15.5	ML	11		1860	2628	1.32	1.06	1.05	1.2	0.85		48	5.00	1.20				0.967	**0.311**	2.00		
1035	16	ML	11		1920	2688	1.32	1.04	1.05	1.2	0.85		48	5.00	1.20				0.966	**0.313**	2.00		
1034.5	16.5	ML	11		1980	2742	1.32	1.03	1.05	1.2	0.85	16.0	48	5.00	1.20	8.2	**24**	0.277	0.965	**0.316**	1.11	0.002	0.010
1034	17	ML	11		2040	2771	1.32	1.02	1.05	1.2	0.85	15.8	48	5.00	1.20	8.2	**24**	0.273	0.964	**0.322**	1.07	0.002	0.010
1033.5	17.5	ML	11		2100	2800	1.32	1.00	1.05	1.2	0.85	15.6	48	5.00	1.20	8.1	**24**	0.269	0.963	**0.328**	1.04	0.003	0.017
1033	18	ML	9		2160	2829	1.32	0.99	1.05	1.2	0.85	12.6	48	5.00	1.20	7.5	**20**	0.217	0.962	**0.333**	0.82	0.014	0.084
1032.5	18.5	ML	9		2220	2858	1.32	0.98	1.05	1.2	0.85	12.4	48	5.00	1.20	7.5	**20**	0.215	0.961	**0.339**	0.80	0.015	0.090
1032	19	ML	9		2280	2887	1.32	0.97	1.05	1.2	0.85	12.3	48	5.00	1.20	7.5	**20**	0.212	0.959	**0.344**	0.78	0.015	0.090
1031.5	19.5	ML	9		2340	2916	1.32	0.95	1.05	1.2	0.85	12.1	48	5.00	1.20	7.4	**20**	0.210	0.958	**0.349**	0.76	0.015	0.090
1031	20	ML	9		2400	2945	1.32	0.94	1.05	1.2	0.95	13.4	48	5.00	1.20	7.7	**21**	0.229	0.957	**0.354**	0.82	0.014	0.084
1030.5	20.5	ML	12		2460	2974	1.32	0.93	1.05	1.2	0.95	17.7	48	5.00	1.20	8.5	**26**	0.317	0.956	**0.359**	1.12	0.001	0.005
1030	21	ML	12		2520	3003	1.32	0.92	1.05	1.2	0.95	17.4	48	5.00	1.20	8.5	**26**	0.312	0.954	**0.364**	1.08	0.002	0.010
1029.5	21.5	ML	12		2580	3032	1.32	0.91	1.05	1.2	0.95	17.2	48	5.00	1.20	8.4	**26**	0.306	0.953	**0.368**	1.05	0.003	0.017
1029	22	SP	32		2640	3061	1.32	0.90	1.05	1.2	0.95	45.4	5	0.00	1.00	0.1	**46**		0.951	**0.373**	2.00		
1028.5	22.5	SP	32		2669	3090	1.32	0.89	1.05	1.2	0.95	45.2	5	0.00	1.00	0.1	**45**		0.950	**0.377**	2.00		
1028	23	SP	32		2698	3119	1.32	0.89	1.05	1.2	0.95	44.9	5	0.00	1.00	0.1	**45**		0.948	**0.381**	2.00		
1027.5	23.5	SP	32		2727	3148	1.32	0.88	1.05	1.2	0.95	44.7	5	0.00	1.00	0.1	**45**		0.947	**0.385**	2.00		
1027	24	SP	32		2756	3177	1.32	0.88	1.05	1.2	0.95	44.5	5	0.00	1.00	0.1	**45**		0.945	**0.389**	2.00		
1026.5	24.5	MH	2	YES	2785	3206	1.32	0.87	1.05	1.2	0.95	2.8	35	5.00	1.20	5.6	**8**	0.099	0.944	**0.393**	0.32	0.028	0.000
1026	25	MH	2	YES	2814	3235	1.32	0.87	1.05	1.2	0.95	2.7	35	5.00	1.20	5.5	**8**	0.098	0.942	**0.397**	0.31	0.028	0.000
1025.5	25.5	MH	2	YES	2843	3264	1.32	0.86	1.05	1.2	0.95	2.7	35	5.00	1.20	5.5	**8**	0.098	0.940	**0.400**	0.31	0.028	0.000
1025	26	MH	2	YES	2872	3293	1.32	0.86	1.05	1.2	0.95	2.7	35	5.00	1.20	5.5	**8**	0.098	0.938	**0.404**	0.31	0.028	0.000
1024.5	26.5	MH	2	YES	2901	3322	1.32	0.86	1.05	1.2	0.95	2.7	35	5.00	1.20	5.5	**8**	0.098	0.936	**0.407**	0.30	0.028	0.000
1024	27	MH	2	YES	2930	3351	1.32	0.85	1.05	1.2	0.95	2.7	35	5.00	1.20	5.5	**8**	0.098	0.934	**0.410**	0.30	0.028	0.000
1023.5	27.5	MH	2	YES	2959	3380	1.32	0.85	1.05	1.2	0.95	2.7	35	5.00	1.20	5.5	**8**	0.098	0.932	**0.413**	0.30	0.028	0.000
1023	28	MH	2	YES	2988	3409	1.32	0.84	1.05	1.2	0.95	2.7	35	5.00	1.20	5.5	**8**	0.098	0.930	**0.416**	0.30	0.028	0.000
1022.5	28.5	SP	52		3017	3438	1.32	0.84	1.05	1.2	0.95	68.8	5	0.00	1.00	0.1	**69**		0.928	**0.419**	2.00		
1022	29	SP	52		3046	3467	1.32	0.83	1.05	1.2	0.95	68.5	5	0.00	1.00	0.1	**69**		0.925	**0.422**	2.00		
1021.5	29.5	SP	52		3075	3496	1.32	0.83	1.05	1.2	0.95	68.1	5	0.00	1.00	0.1	**68**		0.923	**0.424**	2.00		

1021	30	SP	27		3104	3525	1.32	0.82	1.05	1.2	0.95	35.2	5	0.00	1.00	0.0	35		0.921	0.427	2.00		
1020.5	30.5	SP	27		3133	3554	1.32	0.82	1.05	1.2	0.95	35.0	5	0.00	1.00	0.0	35		0.918	0.429	2.00		
1020	31	SP	27		3162	3583	1.32	0.82	1.05	1.2	0.95	34.8	5	0.00	1.00	0.0	35		0.915	0.432	2.00		
1019.5	31.5	SP	27		3191	3612	1.32	0.81	1.05	1.2	0.95	34.7	5	0.00	1.00	0.0	35		0.913	0.434	2.00		
1019	32	SP	27		3220	3641	1.32	0.81	1.05	1.2	0.95	34.5	5	0.00	1.00	0.0	35		0.910	0.436	2.00		
1018.5	32.5	SP	27		3249	3670	1.32	0.80	1.05	1.2	0.95	34.3	5	0.00	1.00	0.0	34		0.907	0.438	2.00		
1018	33	SP	16		3278	3699	1.32	0.80	1.05	1.2	1	21.3	11	1.35	1.03	2.0	23	0.261	0.904	0.439	0.75	0.014	0.084
1017.5	33.5	SP	16		3307	3728	1.32	0.80	1.05	1.2	1	21.2	11	1.35	1.03	2.0	23	0.259	0.901	0.441	0.74	0.014	0.084
1017	34	SP	16		3336	3757	1.32	0.79	1.05	1.2	1	21.1	11	1.35	1.03	1.9	23	0.257	0.897	0.443	0.74	0.014	0.084
1016.5	34.5	SP	42		3365	3786	1.32	0.79	1.05	1.2	1	55.1	11	1.35	1.03	2.9	58		0.894	0.444	2.00		
1016	35	SP	42		3394	3815	1.32	0.78	1.05	1.2	1	54.8	11	1.35	1.03	2.9	58		0.891	0.445	2.00		
1015.5	35.5	SP	42		3423	3844	1.32	0.78	1.05	1.2	1	54.5	5	0.00	1.00	0.1	55		0.887	0.446	2.00		
1015	36	SP	42		3452	3873	1.32	0.78	1.05	1.2	1	54.3	5	0.00	1.00	0.1	54		0.883	0.447	2.00		
1014.5	36.5	SP	42		3481	3902	1.32	0.77	1.05	1.2	1	54.0	5	0.00	1.00	0.1	54		0.880	0.448	2.00		
1014	37	SP	42		3510	3931	1.32	0.77	1.05	1.2	1	53.8	5	0.00	1.00	0.1	54		0.876	0.449	2.00		
1013.5	37.5	SP	50		3539	3960	1.32	0.77	1.05	1.2	1	63.7	5	0.00	1.00	0.1	64		0.872	0.450	2.00		
1013	38	SP	50		3568	3989	1.32	0.76	1.05	1.2	1	63.4	5	0.00	1.00	0.1	63		0.868	0.451	2.00		
1012.5	38.5	SP	50		3597	4018	1.32	0.76	1.05	1.2	1	63.1	5	0.00	1.00	0.1	63		0.864	0.451	2.00		
1012	39	SP	50		3626	4047	1.32	0.76	1.05	1.2	1	62.8	5	0.00	1.00	0.1	63		0.860	0.451	2.00		
1011.5	39.5	SP	50		3655	4076	1.32	0.75	1.05	1.2	1	62.5	5	0.00	1.00	0.1	63		0.855	0.452	2.00		
1011	40	SP	50		3684	4105	1.32	0.75	1.05	1.2	1	62.2	5	0.00	1.00	0.1	62		0.851	0.452	2.00		
1010.5	40.5	SP	50		3713	4134	1.32	0.74	1.05	1.2	1	61.9	5	0.00	1.00	0.1	62		0.847	0.452	2.00		
1010	41	SP	50		3742	4163	1.32	0.74	1.05	1.2	1	61.6	5	0.00	1.00	0.1	62		0.842	0.452	2.00		
1009.5	41.5	SP	50		3771	4192	1.32	0.74	1.05	1.2	1	61.3	5	0.00	1.00	0.1	61		0.837	0.452	2.00		
1009	42	SP	50		3800	4221	1.32	0.73	1.05	1.2	1	61.1	5	0.00	1.00	0.1	61		0.833	0.452	2.00		
1008.5	42.5	SP	50		3829	4250	1.32	0.73	1.05	1.2	1	60.8	5	0.00	1.00	0.1	61		0.828	0.451	2.00		
1008	43	SP	50		3858	4279	1.32	0.73	1.05	1.2	1	60.5	5	0.00	1.00	0.1	61		0.823	0.451	2.00		
1007.5	43.5	SP	50		3887	4308	1.32	0.72	1.05	1.2	1	60.2	5	0.00	1.00	0.1	60		0.818	0.450	2.00		
1007	44	SP	50		3916	4337	1.32	0.72	1.05	1.2	1	60.0	5	0.00	1.00	0.1	60		0.814	0.450	2.00		
1006.5	44.5	SP	50		3945	4366	1.32	0.72	1.05	1.2	1	59.7	5	0.00	1.00	0.1	60		0.809	0.449	2.00		
1006	45	SP	50		3974	4395	1.32	0.71	1.05	1.2	1	59.4	5	0.00	1.00	0.1	60		0.804	0.448	2.00		
1005.5	45.5	SP	50		4003	4424	1.32	0.71	1.05	1.2	1	59.2	5	0.00	1.00	0.1	59		0.799	0.448	2.00		
1005	46	SP	50		4032	4453	1.32	0.71	1.05	1.2	1	58.9	5	0.00	1.00	0.1	59		0.794	0.447	2.00		
1004.5	46.5	SP	50		4061	4482	1.32	0.71	1.05	1.2	1	58.7	5	0.00	1.00	0.1	59		0.788	0.446	2.00		
1004	47	SP	50		4090	4511	1.32	0.70	1.05	1.2	1	58.4	5	0.00	1.00	0.1	58		0.783	0.445	2.00		
1003.5	47.5	SP	50		4119	4540	1.32	0.70	1.05	1.2	1	58.1	5	0.00	1.00	0.1	58		0.778	0.444	2.00		
1003	48	SP	50		4148	4569	1.32	0.70	1.05	1.2	1	57.9	5	0.00	1.00	0.1	58		0.773	0.443	2.00		
1002.5	48.5	SP	50		4177	4598	1.32	0.69	1.05	1.2	1	57.6	5	0.00	1.00	0.1	58		0.768	0.441	2.00		
1002	49	SP	50		4206	4627	1.32	0.69	1.05	1.2	1	57.4	5	0.00	1.00	0.1	57		0.763	0.440	2.00		
1001.5	49.5	SP	50		4235	4656	1.32	0.69	1.05	1.2	1	57.1	5	0.00	1.00	0.1	57		0.758	0.439	2.00		
1001	50	SP	50		4264	4685	1.32	0.68	1.05	1.2	1	56.9	5	0.00	1.00	0.1	57		0.753	0.438	2.00		
1000.5	50.5	SP	50		4293	4714	1.32	0.68	1.05	1.2	1	56.7	5	0.00	1.00	0.1	57		0.748	0.436	2.00		
1000	51	SP	50		4322	4743	1.32	0.68	1.05	1.2	1	56.4	5	0.00	1.00	0.1	56		0.743	0.435	2.00		
999.5	51.5	SP	50		4351	4772	1.32	0.68	1.05	1.2	1	56.2	5	0.00	1.00	0.1	56		0.738	0.434	2.00		
999	52	SP	50		4380	4801	1.32	0.67	1.05	1.2	1	55.9	5	0.00	1.00	0.1	56		0.733	0.432	2.00		
998.5	52.5	SP	50		4409	4830	1.32	0.67	1.05	1.2	1	55.7	5	0.00	1.00	0.1	56		0.728	0.431	2.00		
998	53	SP	50		4438	4859	1.32	0.67	1.05	1.2	1	55.5	5	0.00	1.00	0.1	56		0.723	0.429	2.00		
997.5	53.5	SP	50		4467	4888	1.32	0.66	1.05	1.2	1	55.3	5	0.00	1.00	0.1	55		0.718	0.428	2.00		
997	54	SP	50		4496	4917	1.32	0.66	1.05	1.2	1	55.0	5	0.00	1.00	0.1	55		0.713	0.427	2.00		
996.5	54.5	SP	50		4525	4946	1.32	0.66	1.05	1.2	1	54.8	5	0.00	1.00	0.1	55		0.708	0.425	2.00		
996	55	SP	50		4554	4975	1.32	0.66	1.05	1.2	1	54.6	5	0.00	1.00	0.1	55		0.703	0.424	2.00		
995.5	55.5	SP	50		4583	5004	1.32	0.65	1.05	1.2	1	54.4	5	0.00	1.00	0.1	54		0.699	0.422	2.00		
995	56	SP	50		4612	5033	1.32	0.65	1.05	1.2	1	54.1	5	0.00	1.00	0.1	54		0.694	0.421	2.00		
994.5	56.5	SP	50		4641	5062	1.32	0.65	1.05	1.2	1	53.9	5	0.00	1.00	0.1	54		0.689	0.419	2.00		
994	57	SP	50		4670	5091	1.32	0.65	1.05	1.2	1	53.7	5	0.00	1.00	0.1	54		0.685	0.418	2.00		
993.5	57.5	SP	50		4699	5120	1.32	0.64	1.05	1.2	1	53.5	5	0.00	1.00	0.1	54		0.680	0.416	2.00		
993	58	SP	50		4728	5149	1.32	0.64	1.05	1.2	1	53.3	5	0.00	1.00	0.1	53		0.676	0.415	2.00		
992.5	58.5	SP	50		4757	5178	1.32	0.64	1.05	1.2	1	53.1	5	0.00	1.00	0.1	53		0.672	0.414	2.00		
992	59	SP	50		4786	5207	1.32	0.64	1.05	1.2	1	52.8	5	0.00	1.00	0.1	53		0.668	0.412	2.00		
991.5	59.5	SP	50		4815	5236	1.32	0.63	1.05	1.2	1	52.6	5	0.00	1.00	0.1	53		0.663	0.411	2.00		
991	60	SP	50		4844	5265	1.32	0.63	1.05	1.2	1	52.4	5	0.00	1.00	0.1	52		0.659	0.409	2.00		
990.5	60.5	SP	50		4873	5294	1.32	0.63	1.05	1.2	1	52.2	5	0.00	1.00	0.1	52		0.655	0.408	2.00		
990	61	SP	50		4902	5323	1.32	0.63	1.05	1.2	1	52.0	5	0.00	1.00	0.1	52		0.651	0.407	2.00		
						768																0.000	
						768																0.000	
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						768																0.000	0.000
						768																0.000	0.000
																							0.760

SPT Liquefaction Spreadsheet

JOB NAME	Prpoosed Temecula Hospital	Boring	GDI-3		
DATE	8/4/2010	*y*	120	pcf	
BY	CJZ	GW level	22	ft	
CHECKED BY		HHGL	17.9	ft	
DATE		GS Elevation	1049.5		
		LFFE	1057.4		
			Magnitue	a max	
			6.84	0.88	
		MSF	1.27		

Total Settlement 0.06 INCHES

Elevation (MSL)	Depth (feet)	Soil Type	Nfield	Boulanger and Idriss (2006)	σo' (psf) current	σo' (psf) HHGWL	C_E	C_N	C_B	C_S	C_R	$(N_1)_{60}$	Fines Correction			ΔN	$(N_1)_{60}$	CRR	Rd	CSR	FOS	SETTLEMENT (%)	SETTLEMENT (inches)
					psf	psf	energy	stress	5" diam	w/out liner	rod	interim Corr.	%fines	Alpha	Beta			1998 eq. <N=30					
1048.5	1	SM	12		120	1068	1.32	1.75	1.05	1.2	0.75		15	2.50	1.05				1.000	**0.051**	2.00		
1048	1.5	SM	12		180	1128	1.32	1.71	1.05	1.2	0.75		15	2.50	1.05				0.998	**0.072**	2.00		
1047.5	2	SM	12		240	1188	1.32	1.68	1.05	1.2	0.75		15	2.50	1.05				0.997	**0.091**	2.00		
1047	2.5	SM	12		300	1248	1.32	1.64	1.05	1.2	0.75		15	2.50	1.05				0.996	**0.109**	2.00		
1046.5	3	SM	12		360	1308	1.32	1.61	1.05	1.2	0.75		15	2.50	1.05				0.995	**0.124**	2.00		
1046	3.5	SM	12		420	1368	1.32	1.57	1.05	1.2	0.75		15	2.50	1.05				0.994	**0.139**	2.00		
1045.5	4	SM	12		480	1428	1.32	1.54	1.05	1.2	0.75		15	2.50	1.05				0.993	**0.151**	2.00		
1045	4.5	SM	12		540	1488	1.32	1.51	1.05	1.2	0.75		15	2.50	1.05				0.991	**0.163**	2.00		
1044.5	5	SM	15		600	1548	1.32	1.48	1.05	1.2	0.75		15	2.50	1.05				0.990	**0.174**	2.00		
1044	5.5	SM	15		660	1608	1.32	1.46	1.05	1.2	0.75		15	2.50	1.05				0.989	**0.184**	2.00		
1043.5	6	SM	15		720	1668	1.32	1.43	1.05	1.2	0.75		15	2.50	1.05				0.988	**0.194**	2.00		
1043	6.5	SM	15		780	1728	1.32	1.40	1.05	1.2	0.75		15	2.50	1.05				0.987	**0.202**	2.00		
1042.5	7	SM	15		840	1788	1.32	1.38	1.05	1.2	0.75		15	2.50	1.05				0.986	**0.210**	2.00		
1042	7.5	SM	18		900	1848	1.32	1.35	1.05	1.2	0.75		15	2.50	1.05				0.985	**0.218**	2.00		
1041.5	8	SM	18		960	1908	1.32	1.33	1.05	1.2	0.75		15	2.50	1.05				0.983	**0.225**	2.00		
1041	8.5	SM	18		1020	1968	1.32	1.31	1.05	1.2	0.75		15	2.50	1.05				0.982	**0.231**	2.00		
1040.5	9	SM	18		1080	2028	1.32	1.29	1.05	1.2	0.75		15	2.50	1.05				0.981	**0.237**	2.00		
1040	9.5	SM	25		1140	2088	1.32	1.27	1.05	1.2	0.75		15	2.50	1.05				0.980	**0.243**	2.00		
1039.5	10	SM	25		1200	2148	1.32	1.24	1.05	1.2	0.75		15	2.50	1.05				0.979	**0.248**	2.00		
1039	10.5	SM	25		1260	2208	1.32	1.23	1.05	1.2	0.75		15	2.50	1.05				0.978	**0.253**	2.00		
1038.5	11	SM	25		1320	2268	1.32	1.21	1.05	1.2	0.75		15	2.50	1.05				0.977	**0.258**	2.00		
1038	11.5	SM	25		1380	2328	1.32	1.19	1.05	1.2	0.75		15	2.50	1.05				0.976	**0.263**	2.00		
1037.5	12	SM	25		1440	2388	1.32	1.17	1.05	1.2	0.75		15	2.50	1.05				0.975	**0.267**	2.00		
1037	12.5	SM	25		1500	2448	1.32	1.15	1.05	1.2	0.75		15	2.50	1.05				0.974	**0.271**	2.00		
1036.5	13	SM	25		1560	2508	1.32	1.14	1.05	1.2	0.85		15	2.50	1.05				0.973	**0.275**	2.00		
1036	13.5	SM	25		1620	2568	1.32	1.12	1.05	1.2	0.85		15	2.50	1.05				0.972	**0.278**	2.00		
1035.5	14	SM	25		1680	2628	1.32	1.10	1.05	1.2	0.85		15	2.50	1.05				0.971	**0.282**	2.00		
1035	14.5	SM	25		1740	2688	1.32	1.09	1.05	1.2	0.85		15	2.50	1.05				0.970	**0.285**	2.00		
1034.5	15	SM	25		1800	2748	1.32	1.07	1.05	1.2	0.85		15	2.50	1.05				0.969	**0.288**	2.00		
1034	15.5	SM	25		1860	2808	1.32	1.06	1.05	1.2	0.85		15	2.50	1.05				0.967	**0.291**	2.00		
1033.5	16	SM	25		1920	2868	1.32	1.04	1.05	1.2	0.85		15	2.50	1.05				0.966	**0.294**	2.00		
1033	16.5	SM	25		1980	2928	1.32	1.03	1.05	1.2	0.85		15	2.50	1.05				0.965	**0.296**	2.00		
1032.5	17	SM	25		2040	2988	1.32	1.02	1.05	1.2	0.85		15	2.50	1.05				0.964	**0.299**	2.00		
1032	17.5	SM	25		2100	3048	1.32	1.00	1.05	1.2	0.85		15	2.50	1.05				0.963	**0.301**	2.00		
1031.5	18	SM	25		2160	3102	1.32	0.99	1.05	1.2	0.85	35.0	15	2.50	1.05	4.2	**39**		0.962	**0.304**	2.00		
1031	18.5	SM	25		2220	3131	1.32	0.98	1.05	1.2	0.85	34.6	15	2.50	1.05	4.2	**39**		0.961	**0.309**	2.00		
1030.5	19	SM	25		2280	3160	1.32	0.97	1.05	1.2	0.85	34.1	15	2.50	1.05	4.1	**38**		0.959	**0.314**	2.00		
1030	19.5	ML	6	YES	2340	3189	1.32	0.95	1.05	1.2	0.85	8.1	35	5.00	1.20	6.6	**15**	0.157	0.958	**0.319**	0.62	0.020	0.000
1029.5	20	ML	6	YES	2400	3218	1.32	0.94	1.05	1.2	0.95	8.9	35	5.00	1.20	6.8	**16**	0.167	0.957	**0.324**	0.65	0.018	0.000
1029	20.5	ML	6	YES	2460	3247	1.32	0.93	1.05	1.2	0.95	8.8	35	5.00	1.20	6.8	**16**	0.166	0.956	**0.329**	0.64	0.018	0.000
1028.5	21	ML	6	YES	2520	3276	1.32	0.92	1.05	1.2	0.95	8.7	35	5.00	1.20	6.7	**15**	0.165	0.954	**0.333**	0.63	0.018	0.000
1028	21.5	ML	6	YES	2580	3305	1.32	0.91	1.05	1.2	0.95	8.6	35	5.00	1.20	6.7	**15**	0.164	0.953	**0.338**	0.61	0.018	0.000
1027.5	22	ML	6	YES	2640	3334	1.32	0.90	1.05	1.2	0.95	8.5	35	5.00	1.20	6.7	**15**	0.162	0.951	**0.342**	0.60	0.018	0.000
1027	22.5	ML	6	YES	2669	3363	1.32	0.89	1.05	1.2	0.95	8.5	35	5.00	1.20	6.7	**15**	0.162	0.950	**0.346**	0.59	0.018	0.000
1026.5	23	ML	6	YES	2698	3392	1.32	0.89	1.05	1.2	0.95	8.4	35	5.00	1.20	6.7	**15**	0.161	0.948	**0.350**	0.58	0.018	0.000
1026	23.5	ML	6	YES	2727	3421	1.32	0.88	1.05	1.2	0.95	8.4	35	5.00	1.20	6.7	**15**	0.161	0.947	**0.354**	0.57	0.018	0.000
1025.5	24	ML	6	YES	2756	3450	1.32	0.88	1.05	1.2	0.95	8.3	35	5.00	1.20	6.7	**15**	0.160	0.945	**0.358**	0.57	0.018	0.000
1025	24.5	SM	17		2785	3479	1.32	0.87	1.05	1.2	0.95	23.5	18	3.23	1.07	4.8	**28**	0.380	0.944	**0.362**	1.33	0.000	0.002
1024.5	25	SM	17		2814	3508	1.32	0.87	1.05	1.2	0.95	23.4	18	3.23	1.07	4.8	**28**	0.375	0.942	**0.366**	1.30	0.000	0.002
1024	25.5	SM	17		2843	3537	1.32	0.86	1.05	1.2	0.95	23.2	18	3.23	1.07	4.8	**28**	0.370	0.940	**0.369**	1.27	0.000	0.002
1023.5	26	SM	17		2872	3566	1.32	0.86	1.05	1.2	0.95	23.1	18	3.23	1.07	4.8	**28**	0.365	0.938	**0.373**	1.24	0.001	0.005
1023	26.5	SM	17		2901	3595	1.32	0.86	1.05	1.2	0.95	23.0	18	3.23	1.07	4.8	**28**	0.361	0.936	**0.376**	1.21	0.001	0.005
1022.5	27	SM	17		2930	3624	1.32	0.85	1.05	1.2	0.95	22.9	18	3.23	1.07	4.8	**28**	0.357	0.934	**0.379**	1.19	0.001	0.005
1022	27.5	SM	17		2959	3653	1.32	0.85	1.05	1.2	0.95	22.7	18	3.23	1.07	4.7	**27**	0.353	0.932	**0.382**	1.17	0.001	0.005
1021.5	28	SM	17		2988	3682	1.32	0.84	1.05	1.2	0.95	22.6	18	3.23	1.07	4.7	**27**	0.349	0.930	**0.385**	1.15	0.001	0.005
1021	28.5	SM	17		3017	3711	1.32	0.84	1.05	1.2	0.95	22.5	18	3.23	1.07	4.7	**27**	0.345	0.928	**0.388**	1.12	0.001	0.005
1020.5	29	SM	17		3046	3740	1.32	0.83	1.05	1.2	0.95	22.4	18	3.23	1.07	4.7	**27**	0.341	0.925	**0.391**	1.10	0.002	0.010
1020	29.5	SM	17		3075	3769	1.32	0.83	1.05	1.2	0.95	22.3	18	3.23	1.07	4.7	**27**	0.338	0.923	**0.394**	1.09	0.002	0.010

1019.5	30	SM	23		3104	3798	1.32	0.82	1.05	1.2	0.95	30.0	24	4.13	1.10	7.3	37	0.921	**0.396**	2.00	
1019	30.5	SP	23		3133	3827	1.32	0.82	1.05	1.2	0.95	29.8	24	4.13	1.10	7.3	37	0.918	**0.399**	2.00	
1018.5	31	SP	23		3162	3856	1.32	0.82	1.05	1.2	0.95	29.7	24	4.13	1.10	7.2	37	0.915	**0.401**	2.00	
1018	31.5	SP	23		3191	3885	1.32	0.81	1.05	1.2	0.95	29.5	24	4.13	1.10	7.2	37	0.913	**0.403**	2.00	
1017.5	32	SP	23		3220	3914	1.32	0.81	1.05	1.2	0.95	29.4	25	4.25	1.11	7.5	37	0.910	**0.405**	2.00	
1017	32.5	SP	23		3249	3943	1.32	0.80	1.05	1.2	0.95	29.2	24	4.13	1.10	7.2	36	0.907	**0.407**	2.00	
1016.5	33	SP	35		3278	3972	1.32	0.80	1.05	1.2	1	46.6	18	3.23	1.07	6.3	53	0.904	**0.409**	2.00	
1016	33.5	SP	35		3307	4001	1.32	0.80	1.05	1.2	1	46.4	18	3.23	1.07	6.3	53	0.901	**0.411**	2.00	
1015.5	34	SP	35		3336	4030	1.32	0.79	1.05	1.2	1	46.1	18	3.23	1.07	6.3	52	0.897	**0.413**	2.00	
1015	34.5	SP	35		3365	4059	1.32	0.79	1.05	1.2	1	45.9	18	3.23	1.07	6.3	52	0.894	**0.414**	2.00	
1014.5	35	SP	35		3394	4088	1.32	0.78	1.05	1.2	1	45.7	18	3.23	1.07	6.3	52	0.891	**0.415**	2.00	
1014	35.5	SP	35		3423	4117	1.32	0.78	1.05	1.2	1	45.5	18	3.23	1.07	6.3	52	0.887	**0.417**	2.00	
1013.5	36	SP	35		3452	4146	1.32	0.78	1.05	1.2	1	45.2	18	3.23	1.07	6.2	51	0.883	**0.418**	2.00	
1013	36.5	SP	35		3481	4175	1.32	0.77	1.05	1.2	1	45.0	18	3.23	1.07	6.2	51	0.880	**0.419**	2.00	
1012.5	37	SP	35		3510	4204	1.32	0.77	1.05	1.2	1	44.8	18	3.23	1.07	6.2	51	0.876	**0.420**	2.00	
1012	37.5	SP	39		3539	4233	1.32	0.77	1.05	1.2	1	49.7	18	3.23	1.07	6.5	56	0.872	**0.421**	2.00	
1011.5	38	SP	39		3568	4262	1.32	0.76	1.05	1.2	1	49.4	18	3.23	1.07	6.5	56	0.868	**0.422**	2.00	
1011	38.5	SP	39		3597	4291	1.32	0.76	1.05	1.2	1	49.2	18	3.23	1.07	6.5	56	0.864	**0.422**	2.00	
1010.5	39	SP	34		3626	4320	1.32	0.76	1.05	1.2	1	42.7	18	3.23	1.07	6.1	49	0.860	**0.423**	2.00	
1010	39.5	SP	34		3655	4349	1.32	0.75	1.05	1.2	1	42.5	18	3.23	1.07	6.1	49	0.855	**0.423**	2.00	
1009.5	40	SP	34		3684	4378	1.32	0.75	1.05	1.2	1	42.3	18	3.23	1.07	6.0	48	0.851	**0.424**	2.00	
1009	40.5	SP	34		3713	4407	1.32	0.74	1.05	1.2	1	42.1	18	3.23	1.07	6.0	48	0.847	**0.424**	2.00	
1008.5	41	SP	34		3742	4436	1.32	0.74	1.05	1.2	1	41.9	18	3.23	1.07	6.0	48	0.842	**0.424**	2.00	
1008	41.5	SP	34		3771	4465	1.32	0.74	1.05	1.2	1	41.7	18	3.23	1.07	6.0	48	0.837	**0.424**	2.00	
1007.5	42	SP	34		3800	4494	1.32	0.73	1.05	1.2	1	41.5	18	3.23	1.07	6.0	48	0.833	**0.424**	2.00	
1007	42.5	SP	34		3829	4523	1.32	0.73	1.05	1.2	1	41.3	18	3.23	1.07	6.0	47	0.828	**0.424**	2.00	
1006.5	43	SP	34		3858	4552	1.32	0.73	1.05	1.2	1	41.2	18	3.23	1.07	6.0	47	0.823	**0.424**	2.00	
1006	43.5	SP	34		3887	4581	1.32	0.72	1.05	1.2	1	41.0	18	3.23	1.07	6.0	47	0.818	**0.423**	2.00	
1005.5	44	SP	34		3916	4610	1.32	0.72	1.05	1.2	1	40.8	18	3.23	1.07	5.9	47	0.814	**0.423**	2.00	
1005	44.5	SP	34		3945	4639	1.32	0.72	1.05	1.2	1	40.6	18	3.23	1.07	5.9	47	0.809	**0.423**	2.00	
1004.5	45	SP	34		3974	4668	1.32	0.71	1.05	1.2	1	40.4	22	3.93	1.09	7.7	48	0.804	**0.422**	2.00	
1004	45.5	SP	26		4003	4697	1.32	0.71	1.05	1.2	1	30.8	22	3.93	1.09	6.8	38	0.799	**0.422**	2.00	
1003.5	46	SP	26		4032	4726	1.32	0.71	1.05	1.2	1	30.6	22	3.93	1.09	6.8	37	0.794	**0.421**	2.00	
1003	46.5	SP	26		4061	4755	1.32	0.71	1.05	1.2	1	30.5	22	3.93	1.09	6.8	37	0.788	**0.420**	2.00	
1002.5	47	SP	26		4090	4784	1.32	0.70	1.05	1.2	1	30.4	22	3.93	1.09	6.8	37	0.783	**0.419**	2.00	
1002	47.5	SP	26		4119	4813	1.32	0.70	1.05	1.2	1	30.2	22	3.93	1.09	6.7	37	0.778	**0.419**	2.00	
1001.5	48	SP	26		4148	4842	1.32	0.70	1.05	1.2	1	30.1	22	3.93	1.09	6.7	37	0.773	**0.418**	2.00	
1001	48.5	SP	26		4177	4871	1.32	0.69	1.05	1.2	1	30.0	22	3.93	1.09	6.7	37	0.768	**0.417**	2.00	
1000.5	49	SP	26		4206	4900	1.32	0.69	1.05	1.2	1	29.8	22	3.93	1.09	6.7	37	0.763	**0.416**	2.00	
1000	49.5	SP	26		4235	4929	1.32	0.69	1.05	1.2	1	29.7	22	3.93	1.09	6.7	36	0.758	**0.415**	2.00	
999.5	50	SP	26		4264	4958	1.32	0.68	1.05	1.2	1	29.6	22	3.93	1.09	6.7	36	0.753	**0.414**	2.00	
999	50.5	SP	50		4293	4987	1.32	0.68	1.05	1.2	1	56.7	5	0.00	1.00	0.1	57	0.748	**0.413**	2.00	
998.5	51	SP	50		4322	5016	1.32	0.68	1.05	1.2	1	56.4	5	0.00	1.00	0.1	56	0.743	**0.411**	2.00	
998	51.5	SP	50		4351	5045	1.32	0.68	1.05	1.2	1	56.2	5	0.00	1.00	0.1	56	0.738	**0.410**	2.00	
997.5	52	SP	50		4380	5074	1.32	0.67	1.05	1.2	1	55.9	5	0.00	1.00	0.1	56	0.733	**0.409**	2.00	
997	52.5	SP	50		4409	5103	1.32	0.67	1.05	1.2	1	55.7	5	0.00	1.00	0.1	56	0.728	**0.408**	2.00	
996.5	53	SP	50		4438	5132	1.32	0.67	1.05	1.2	1	55.5	5	0.00	1.00	0.1	56	0.723	**0.407**	2.00	
996	53.5	SP	50		4467	5161	1.32	0.66	1.05	1.2	1	55.3	5	0.00	1.00	0.1	55	0.718	**0.405**	2.00	
995.5	54	SP	50		4496	5190	1.32	0.66	1.05	1.2	1	55.0	5	0.00	1.00	0.1	55	0.713	**0.404**	2.00	
995	54.5	SP	**50**		4525	5219	1.32	0.66	1.05	1.2	1	54.8	5	0.00	1.00	0.1	55	0.708	**0.403**	2.00	
994.5	55	SP	**50**		4554	5248	1.32	0.66	1.05	1.2	1	54.6	5	0.00	1.00	0.1	55	0.703	**0.402**	2.00	
994	55.5	SP	**50**		4583	5277	1.32	0.65	1.05	1.2	1	54.4	5	0.00	1.00	0.1	54	0.699	**0.400**	2.00	
993.5	56	SP	**50**		4612	5306	1.32	0.65	1.05	1.2	1	54.1	5	0.00	1.00	0.1	54	0.694	**0.399**	2.00	
993	56.5	SP	**50**		4641	5335	1.32	0.65	1.05	1.2	1	53.9	5	0.00	1.00	0.1	54	0.689	**0.398**	2.00	
992.5	57	SP	**50**		4670	5364	1.32	0.65	1.05	1.2	1	53.7	5	0.00	1.00	0.1	54	0.685	**0.397**	2.00	
992	57.5	SP	**50**		4699	5393	1.32	0.64	1.05	1.2	1	53.5	5	0.00	1.00	0.1	54	0.680	**0.395**	2.00	
991.5	58	SP	**50**		4728	5422	1.32	0.64	1.05	1.2	1	53.3	5	0.00	1.00	0.1	53	0.676	**0.394**	2.00	
991	58.5	SP	**50**		4757	5451	1.32	0.64	1.05	1.2	1	53.1	5	0.00	1.00	0.1	53	0.672	**0.393**	2.00	
990.5	59	SP	50		4786	5480	1.32	0.64	1.05	1.2	1	52.8	5	0.00	1.00	0.1	53	0.668	**0.392**	2.00	
990	59.5	SP	50		4815	5509	1.32	0.63	1.05	1.2	1	52.6	5	0.00	1.00	0.1	53	0.663	**0.390**	2.00	
989.5	60	SP	50		4844	5538	1.32	0.63	1.05	1.2	1	52.4	5	0.00	1.00	0.1	52	0.659	**0.389**	2.00	
989	60.5	SP	50		4873	5567	1.32	0.63	1.05	1.2	1	52.2	5	0.00	1.00	0.1	52	0.655	**0.388**	2.00	
988.5	61	SP	50		4902	5596	1.32	0.63	1.05	1.2	1	52.0	5	0.00	1.00	0.1	52	0.651	**0.387**	2.00	
988	61.5	SP	50		4931	5625	1.32	0.62	1.05	1.2	1	51.8	5	0.00	1.00	0.1	52	0.647	**0.386**	2.00	
987.5	62	SP	50		4960	5654	1.32	0.62	1.05	1.2	1	51.6	5	0.00	1.00	0.1	52	0.644	**0.384**	2.00	
987	62.5	SP	50		4989	5683	1.32	0.62	1.05	1.2	1	51.4	5	0.00	1.00	0.1	51	0.640	**0.383**	2.00	
986.5	63	SP	50		5018	5712	1.32	0.62	1.05	1.2	1	51.2	5	0.00	1.00	0.1	51	0.636	**0.382**	2.00	
986	63.5	SP	50		5047	5741	1.32	0.61	1.05	1.2	1	51.0	5	0.00	1.00	0.1	51	0.632	**0.381**	2.00	
985.5	64	SP	50		5076	5770	1.32	0.61	1.05	1.2	1	50.8	5	0.00	1.00	0.1	51	0.629	**0.380**	2.00	
985	64.5	SP	50		5105	5799	1.32	0.61	1.05	1.2	1	50.6	5	0.00	1.00	0.1	51	0.625	**0.379**	2.00	
984.5	65	SP	50		5134	5828	1.32	0.61	1.05	1.2	1	50.5	5	0.00	1.00	0.1	51	0.622	**0.378**	2.00	
984	65.5	SP	50		5163	5857	1.32	0.60	1.05	1.2	1	50.3	5	0.00	1.00	0.1	50	0.619	**0.377**	2.00	
983.5	66	SP	50		5192	5886	1.32	0.60	1.05	1.2	1	50.1	5	0.00	1.00	0.1	50	0.616	**0.376**	2.00	
983	66.5	SP	50		5221	5915	1.32	0.60	1.05	1.2	1	49.9	5	0.00	1.00	0.1	50	0.612	**0.375**	2.00	
982.5	67	SP	50		5250	5944	1.32	0.60	1.05	1.2	1	49.7	5	0.00	1.00	0.1	50	0.609	**0.374**	2.00	
982	67.5	SP	50		5279	5973	1.32	0.60	1.05	1.2	1	49.5	5	0.00	1.00	0.1	50	0.606	**0.373**	2.00	
981.5	68	SP	50		5308	6002	1.32	0.59	1.05	1.2	1	49.3	5	0.00	1.00	0.1	49	0.603	**0.372**	2.00	
981	68.5	SP	50		5337	6031	1.32	0.59	1.05	1.2	1	49.2	5	0.00	1.00	0.1	49	0.600	**0.371**	2.00	
980.5	69	SP	50		5366	6060	1.32	0.59	1.05	1.2	1	49.0	5	0.00	1.00	0.1	49	0.597	**0.371**	2.00	
980	69.5	SP	50		5395	6089	1.32	0.59	1.05	1.2	1	48.8	5	0.00	1.00	0.1	49	0.595	**0.370**	2.00	
979.5	70	SP	50		5424	6118	1.32	0.58	1.05	1.2	1	48.6	5	0.00	1.00	0.1	49	0.592	**0.369**	2.00	
																					0.060

SPT Liquefaction Spreadsheet

JOB NAME	Prpoosed Temecula Hospital	Boring	GDI-4		
DATE	8/4/2010	*y*	120	pcf	
BY	CJZ	GW level	23	ft	
CHECKED BY		HHGL	18.9	ft	
DATE		GS Elevation	1048.5		
		LFFE	1057.4		

Magnitue	a max
6.84	0.88

MSF 1.27

Total Settlement 0.05 INCHES

Elevation (MSL)	Depth (feet)	Soil Type	Nfield	Boulanger and Idriss (2006)	σo' (psf) current	σo' (psf) HHGWL	C_E	C_N	C_B	C_S	C_R	$(N_1)_{60}$	Fines Correction			ΔN	$(N_1)_{60}$	CRR 1998 eq.	Rd	CSR	FOS	SETTLEMENT (%)	SETTLEMENT (inches)
					psf	psf	energy	stress	5" diam	w/out liner	rod	interim Corr.	%fines	Alpha	Beta			<N=30					
1047.5	1	SP-SM	13		120	1188	1.32	1.75	1.05	1.2	0.75		10	0.87	1.02				1.000	**0.046**	2.00		
1047	1.5	SP-SM	13		180	1248	1.32	1.71	1.05	1.2	0.75		10	0.87	1.02				0.998	**0.065**	2.00		
1046.5	2	SP-SM	13		240	1308	1.32	1.68	1.05	1.2	0.75		10	0.87	1.02				0.997	**0.083**	2.00		
1046	2.5	SP-SM	13		300	1368	1.32	1.64	1.05	1.2	0.75		10	0.87	1.02				0.996	**0.099**	2.00		
1045.5	3	SP-SM	13		360	1428	1.32	1.61	1.05	1.2	0.75		10	0.87	1.02				0.995	**0.114**	2.00		
1045	3.5	SP-SM	13		420	1488	1.32	1.57	1.05	1.2	0.75		10	0.87	1.02				0.994	**0.127**	2.00		
1044.5	4	SP-SM	13		480	1548	1.32	1.54	1.05	1.2	0.75		10	0.87	1.02				0.993	**0.140**	2.00		
1044	4.5	SP-SM	13		540	1608	1.32	1.51	1.05	1.2	0.75		10	0.87	1.02				0.991	**0.151**	2.00		
1043.5	5	SP-SM	13		600	1668	1.32	1.48	1.05	1.2	0.75		10	0.87	1.02				0.990	**0.162**	2.00		
1043	5.5	SP-SM	13		660	1728	1.32	1.46	1.05	1.2	0.75		10	0.87	1.02				0.989	**0.172**	2.00		
1042.5	6	SP-SM	13		720	1788	1.32	1.43	1.05	1.2	0.75		10	0.87	1.02				0.988	**0.181**	2.00		
1042	6.5	SP-SM	13		780	1848	1.32	1.40	1.05	1.2	0.75		10	0.87	1.02				0.987	**0.189**	2.00		
1041.5	7	SP-SM	13		840	1908	1.32	1.38	1.05	1.2	0.75		10	0.87	1.02				0.986	**0.197**	2.00		
1041	7.5	SP-SM	13		900	1968	1.32	1.35	1.05	1.2	0.75		10	0.87	1.02				0.985	**0.204**	2.00		
1040.5	8	SP-SM	13		960	2028	1.32	1.33	1.05	1.2	0.75		10	0.87	1.02				0.983	**0.211**	2.00		
1040	8.5	SP	17		1020	2088	1.32	1.31	1.05	1.2	0.75		5	0.00	1.00				0.982	**0.218**	2.00		
1039.5	9	SP	17		1080	2148	1.32	1.29	1.05	1.2	0.75		5	0.00	1.00				0.981	**0.224**	2.00		
1039	9.5	SP	17		1140	2208	1.32	1.27	1.05	1.2	0.75		5	0.00	1.00				0.980	**0.230**	2.00		
1038.5	10	SP	17		1200	2268	1.32	1.24	1.05	1.2	0.75		5	0.00	1.00				0.979	**0.235**	2.00		
1038	10.5	SP	17		1260	2328	1.32	1.23	1.05	1.2	0.75		5	0.00	1.00				0.978	**0.240**	2.00		
1037.5	11	SP	17		1320	2388	1.32	1.21	1.05	1.2	0.75		5	0.00	1.00				0.977	**0.245**	2.00		
1037	11.5	SP	17		1380	2448	1.32	1.19	1.05	1.2	0.75		5	0.00	1.00				0.976	**0.250**	2.00		
1036.5	12	SP	17		1440	2508	1.32	1.17	1.05	1.2	0.75		5	0.00	1.00				0.975	**0.254**	2.00		
1036	12.5	SP	21		1500	2568	1.32	1.15	1.05	1.2	0.75		5	0.00	1.00				0.974	**0.258**	2.00		
1035.5	13	SP	21		1560	2628	1.32	1.14	1.05	1.2	0.85		5	0.00	1.00				0.973	**0.262**	2.00		
1035	13.5	SP	21		1620	2688	1.32	1.12	1.05	1.2	0.85		5	0.00	1.00				0.972	**0.266**	2.00		
1034.5	14	SP	21		1680	2748	1.32	1.10	1.05	1.2	0.85		5	0.00	1.00				0.971	**0.269**	2.00		
1034	14.5	SP	21		1740	2808	1.32	1.09	1.05	1.2	0.85		5	0.00	1.00				0.970	**0.273**	2.00		
1033.5	15	SP	21		1800	2868	1.32	1.07	1.05	1.2	0.85		9	0.62	1.02				0.969	**0.276**	2.00		
1033	15.5	SP	21		1860	2928	1.32	1.06	1.05	1.2	0.85		9	0.56	1.02				0.967	**0.279**	2.00		
1032.5	16	SP	21		1920	2988	1.32	1.04	1.05	1.2	0.85		9	0.56	1.02				0.966	**0.282**	2.00		
1032	16.5	SP	21		1980	3048	1.32	1.03	1.05	1.2	0.85		9	0.56	1.02				0.965	**0.285**	2.00		
1031.5	17	SP	21		2040	3108	1.32	1.02	1.05	1.2	0.85		9	0.56	1.02				0.964	**0.287**	2.00		
1031	17.5	SP	21		2100	3168	1.32	1.00	1.05	1.2	0.85		9	0.56	1.02				0.963	**0.290**	2.00		
1030.5	18	SP	21		2160	3228	1.32	0.99	1.05	1.2	0.85		9	0.56	1.02				0.962	**0.292**	2.00		
1030	18.5	SP	21		2220	3288	1.32	0.98	1.05	1.2	0.85		9	0.56	1.02				0.961	**0.294**	2.00		
1029.5	19	SP	21		2280	3342	1.32	0.97	1.05	1.2	0.85	28.7	9	0.56	1.02	1.0	**30**	0.449	0.959	**0.297**	1.91	0.000	0.000
1029	19.5	SP	21		2340	3371	1.32	0.95	1.05	1.2	0.85	28.3	9	0.56	1.02	1.0	**29**	0.429	0.958	**0.302**	1.80	0.000	0.000
1028.5	20	SP	21		2400	3400	1.32	0.94	1.05	1.2	0.95	31.3	9	0.56	1.02	1.1	**32**		0.957	**0.307**	2.00		
1028	20.5	SP	13		2460	3429	1.32	0.93	1.05	1.2	0.95	19.1	22	3.97	1.10	5.8	**25**	0.290	0.956	**0.311**	1.18	0.001	0.005
1027.5	21	SP	13		2520	3458	1.32	0.92	1.05	1.2	0.95	18.9	22	3.97	1.10	5.8	**25**	0.285	0.954	**0.316**	1.14	0.001	0.005
1027	21.5	SP	13		2580	3487	1.32	0.91	1.05	1.2	0.95	18.7	22	3.97	1.10	5.7	**24**	0.281	0.953	**0.320**	1.11	0.002	0.010
1026.5	22	SP	13		2640	3516	1.32	0.90	1.05	1.2	0.95	18.5	22	3.97	1.10	5.7	**24**	0.277	0.951	**0.324**	1.08	0.002	0.010
1026	22.5	SP	13		2700	3545	1.32	0.89	1.05	1.2	0.95	18.3	22	3.93	1.09	5.6	**24**	0.271	0.950	**0.329**	1.04	0.003	0.017
1025.5	23	ML	10	YES	2760	3574	1.32	0.88	1.05	1.2	0.95	13.9	35	5.00	1.20	7.8	**22**	0.237	0.948	**0.333**	0.90	0.014	0.000
1025	23.5	ML	10	YES	2789	3603	1.32	0.87	1.05	1.2	0.95	13.8	35	5.00	1.20	7.8	**22**	0.236	0.947	**0.337**	0.89	0.014	0.000
1024.5	24	ML	10	YES	2818	3632	1.32	0.87	1.05	1.2	0.95	13.7	35	5.00	1.20	7.7	**21**	0.235	0.945	**0.340**	0.87	0.014	0.000
1024	24.5	ML	10	YES	2847	3661	1.32	0.86	1.05	1.2	0.95	13.7	35	5.00	1.20	7.7	**21**	0.233	0.944	**0.344**	0.86	0.014	0.000
1023.5	25	ML	10	YES	2876	3690	1.32	0.86	1.05	1.2	0.95	13.6	35	5.00	1.20	7.7	**21**	0.232	0.942	**0.348**	0.85	0.014	0.000
1023	25.5	ML	10	YES	2905	3719	1.32	0.86	1.05	1.2	0.95	13.5	35	5.00	1.20	7.7	**21**	0.231	0.940	**0.351**	0.83	0.014	0.000
1022.5	26	ML	10	YES	2934	3748	1.32	0.85	1.05	1.2	0.95	13.4	35	5.00	1.20	7.7	**21**	0.230	0.938	**0.355**	0.82	0.014	0.000
1022	26.5	ML	10	YES	2963	3777	1.32	0.85	1.05	1.2	0.95	13.4	35	5.00	1.20	7.7	**21**	0.229	0.936	**0.358**	0.81	0.014	0.000
1021.5	27	ML	10	YES	2992	3806	1.32	0.84	1.05	1.2	0.95	13.3	35	5.00	1.20	7.7	**21**	0.228	0.934	**0.361**	0.80	0.014	0.000
1021	27.5	ML	10	YES	3021	3835	1.32	0.84	1.05	1.2	0.95	13.2	35	5.00	1.20	7.6	**21**	0.227	0.932	**0.364**	0.79	0.014	0.000
1020.5	28	ML	10	YES	3050	3864	1.32	0.83	1.05	1.2	0.95	13.2	35	5.00	1.20	7.6	**21**	0.226	0.930	**0.367**	0.78	0.014	0.000
1020	28.5	ML	10	YES	3079	3893	1.32	0.83	1.05	1.2	0.95	13.1	35	5.00	1.20	7.6	**21**	0.224	0.928	**0.370**	0.77	0.014	0.000
1019.5	29	ML	10	YES	3108	3922	1.32	0.82	1.05	1.2	0.95	13.0	35	5.00	1.20	7.6	**21**	0.223	0.925	**0.373**	0.76	0.014	0.000
1019	29.5	ML	10	YES	3137	3951	1.32	0.82	1.05	1.2	0.95	13.0	35	5.00	1.20	7.6	**21**	0.222	0.923	**0.376**	0.75	0.014	0.000

1018.5	30	ML	10	YES	3166	3980	1.32	0.82	1.05	1.2	0.95	12.9	35	5.00	1.20	7.6	20	0.221	0.921	0.378	0.74	0.014	0.000
1018	30.5	SP	30		3195	4009	1.32	0.81	1.05	1.2	0.95	38.5	5	0.00	1.00	0.0	39		0.918	0.381	2.00		
1017.5	31	SP	30		3224	4038	1.32	0.81	1.05	1.2	0.95	38.3	5	0.00	1.00	0.0	38		0.915	0.383	2.00		
1017	31.5	SP	30		3253	4067	1.32	0.80	1.05	1.2	0.95	38.1	5	0.00	1.00	0.0	38		0.913	0.385	2.00		
1016.5	32	SP	30		3282	4096	1.32	0.80	1.05	1.2	0.95	37.9	5	0.00	1.00	0.0	38		0.910	0.387	2.00		
1016	32.5	SP	30		3311	4125	1.32	0.80	1.05	1.2	0.95	37.7	5	0.00	1.00	0.0	38		0.907	0.389	2.00		
1015.5	33	SP	41		3340	4154	1.32	0.79	1.05	1.2	1	54.0	5	0.00	1.00	0.1	54		0.904	0.391	2.00		
1015	33.5	SP	41		3369	4183	1.32	0.79	1.05	1.2	1	53.7	5	0.00	1.00	0.1	54		0.901	0.393	2.00		
1014.5	34	SP	41		3398	4212	1.32	0.78	1.05	1.2	1	53.5	5	0.00	1.00	0.1	54		0.897	0.395	2.00		
1014	34.5	SP	41		3427	4241	1.32	0.78	1.05	1.2	1	53.2	5	0.00	1.00	0.1	53		0.894	0.396	2.00		
1013.5	35	SP	41		3456	4270	1.32	0.78	1.05	1.2	1	52.9	5	0.00	1.00	0.1	53		0.891	0.398	2.00		
1013	35.5	SP	27		3485	4299	1.32	0.77	1.05	1.2	1	34.7	5	0.00	1.00	0.0	35		0.887	0.399	2.00		
1012.5	36	SP	27		3514	4328	1.32	0.77	1.05	1.2	1	34.5	5	0.00	1.00	0.0	35		0.883	0.400	2.00		
1012	36.5	SP	27		3543	4357	1.32	0.77	1.05	1.2	1	34.4	5	0.00	1.00	0.0	34		0.880	0.402	2.00		
1011.5	37	SP	27		3572	4386	1.32	0.76	1.05	1.2	1	34.2	5	0.00	1.00	0.0	34		0.876	0.403	2.00		
1011	37.5	SP	27		3601	4415	1.32	0.76	1.05	1.2	1	34.0	5	0.00	1.00	0.0	34		0.872	0.404	2.00		
1010.5	38	SP	32		3630	4444	1.32	0.75	1.05	1.2	1	40.2	5	0.00	1.00	0.1	40		0.868	0.404	2.00		
1010	38.5	SP	32		3659	4473	1.32	0.75	1.05	1.2	1	40.0	5	0.00	1.00	0.1	40		0.864	0.405	2.00		
1009.5	39	SP	32		3688	4502	1.32	0.75	1.05	1.2	1	39.8	5	0.00	1.00	0.0	40		0.860	0.406	2.00		
1009	39.5	SP	32		3717	4531	1.32	0.74	1.05	1.2	1	39.6	5	0.00	1.00	0.0	40		0.855	0.406	2.00		
1008.5	40	SP	32		3746	4560	1.32	0.74	1.05	1.2	1	39.4	5	0.00	1.00	0.0	39		0.851	0.407	2.00		
1008	40.5	SP	28		3775	4589	1.32	0.74	1.05	1.2	1	34.3	5	0.00	1.00	0.0	34		0.847	0.407	2.00		
1007.5	41	SP	28		3804	4618	1.32	0.73	1.05	1.2	1	34.2	5	0.00	1.00	0.0	34		0.842	0.407	2.00		
1007	41.5	SP	28		3833	4647	1.32	0.73	1.05	1.2	1	34.0	5	0.00	1.00	0.0	34		0.837	0.408	2.00		
1006.5	42	SP	28		3862	4676	1.32	0.73	1.05	1.2	1	33.9	5	0.00	1.00	0.0	34		0.833	0.408	2.00		
1006	42.5	SP	28		3891	4705	1.32	0.72	1.05	1.2	1	33.7	5	0.00	1.00	0.0	34		0.828	0.408	2.00		
1005.5	43	SP	28		3920	4734	1.32	0.72	1.05	1.2	1	33.6	5	0.00	1.00	0.0	34		0.823	0.407	2.00		
1005	43.5	ML	20		3949	4763	1.32	0.72	1.05	1.2	1	23.9	35	5.00	1.20	9.8	34		0.818	0.407	2.00		
1004.5	44	ML	20		3978	4792	1.32	0.71	1.05	1.2	1	23.8	35	5.00	1.20	9.8	34		0.814	0.407	2.00		
1004	44.5	ML	50		4007	4821	1.32	0.71	1.05	1.2	1	59.1	35	5.00	1.20	16.8	76		0.809	0.407	2.00		
1003.5	45	SP	50		4036	4850	1.32	0.71	1.05	1.2	1	58.9	5	0.00	1.00	0.1	59		0.804	0.406	2.00		
1003	45.5	SP	50		4065	4879	1.32	0.70	1.05	1.2	1	58.6	5	0.00	1.00	0.1	59		0.799	0.406	2.00		
1002.5	46	SP	50		4094	4908	1.32	0.70	1.05	1.2	1	58.4	5	0.00	1.00	0.1	58		0.794	0.405	2.00		
1002	46.5	SP	50		4123	4937	1.32	0.70	1.05	1.2	1	58.1	5	0.00	1.00	0.1	58		0.788	0.405	2.00		
1001.5	47	SP	50		4152	4966	1.32	0.70	1.05	1.2	1	57.9	5	0.00	1.00	0.1	58		0.783	0.404	2.00		
1001	47.5	SP	50		4181	4995	1.32	0.69	1.05	1.2	1	57.6	5	0.00	1.00	0.1	58		0.778	0.403	2.00		
1000.5	48	SP	50		4210	5024	1.32	0.69	1.05	1.2	1	57.4	5	0.00	1.00	0.1	57		0.773	0.402	2.00		
1000	48.5	SP	50		4239	5053	1.32	0.69	1.05	1.2	1	57.1	5	0.00	1.00	0.1	57		0.768	0.402	2.00		
999.5	49	SP	50		4268	5082	1.32	0.68	1.05	1.2	1	56.9	5	0.00	1.00	0.1	57		0.763	0.401	2.00		
999	49.5	SP	50		4297	5111	1.32	0.68	1.05	1.2	1	56.6	5	0.00	1.00	0.1	57		0.758	0.400	2.00		
998.5	50	SP	50		4326	5140	1.32	0.68	1.05	1.2	1	56.4	5	0.00	1.00	0.1	56		0.753	0.399	2.00		
998	50.5	SP	50		4355	5169	1.32	0.68	1.05	1.2	1	56.2	5	0.00	1.00	0.1	56		0.748	0.398	2.00		
997.5	51	SP	50		4384	5198	1.32	0.67	1.05	1.2	1	55.9	5	0.00	1.00	0.1	56		0.743	0.397	2.00		
997	51.5	SP	50		4413	5227	1.32	0.67	1.05	1.2	1	55.7	5	0.00	1.00	0.1	56		0.738	0.396	2.00		
996.5	52	SP	50		4442	5256	1.32	0.67	1.05	1.2	1	55.5	5	0.00	1.00	0.1	56		0.733	0.395	2.00		
996	52.5	SP	50		4471	5285	1.32	0.66	1.05	1.2	1	55.2	5	0.00	1.00	0.1	55		0.728	0.394	2.00		
995.5	53	SP	50		4500	5314	1.32	0.66	1.05	1.2	1	55.0	5	0.00	1.00	0.1	55		0.723	0.393	2.00		
995	53.5	SP	50		4529	5343	1.32	0.66	1.05	1.2	1	54.8	5	0.00	1.00	0.1	55		0.718	0.392	2.00		
994.5	54	SP	50		4558	5372	1.32	0.66	1.05	1.2	1	54.5	5	0.00	1.00	0.1	55		0.713	0.390	2.00		
994	54.5	SP	50		4587	5401	1.32	0.65	1.05	1.2	1	54.3	5	0.00	1.00	0.1	54		0.708	0.389	2.00		
993.5	55	SP	50		4616	5430	1.32	0.65	1.05	1.2	1	54.1	5	0.00	1.00	0.1	54		0.703	0.388	2.00		
993	55.5	SP	50		4645	5459	1.32	0.65	1.05	1.2	1	53.9	5	0.00	1.00	0.1	54		0.699	0.387	2.00		
992.5	56	SP	50		4674	5488	1.32	0.65	1.05	1.2	1	53.7	5	0.00	1.00	0.1	54		0.694	0.386	2.00		
992	56.5	SP	50		4703	5517	1.32	0.64	1.05	1.2	1	53.5	5	0.00	1.00	0.1	54		0.689	0.385	2.00		
991.5	57	SP	50		4732	5546	1.32	0.64	1.05	1.2	1	53.2	5	0.00	1.00	0.1	53		0.685	0.384	2.00		
991	57.5	SP	50		4761	5575	1.32	0.64	1.05	1.2	1	53.0	5	0.00	1.00	0.1	53		0.680	0.382	2.00		
990.5	58	SP	50		4790	5604	1.32	0.64	1.05	1.2	1	52.8	35	5.00	1.20	15.6	68		0.676	0.381	2.00		
990	58.5	SP	50		4819	5633	1.32	0.63	1.05	1.2	1	52.6	35	5.00	1.20	15.5	68		0.672	0.380	2.00		
989.5	59	SP	50		4848	5662	1.32	0.63	1.05	1.2	1	52.4	5	0.00	1.00	0.1	52		0.668	0.379	2.00		
989	59.5	SP	50		4877	5691	1.32	0.63	1.05	1.2	1	52.2	5	0.00	1.00	0.1	52		0.663	0.378	2.00		
988.5	60	SP	50		4906	5720	1.32	0.63	1.05	1.2	1	52.0	5	0.00	1.00	0.1	52		0.659	0.377	2.00		
988	60.5	SP	50		4935	5749	1.32	0.62	1.05	1.2	1	51.8	5	0.00	1.00	0.1	52		0.655	0.376	2.00		
987.5	61	SP	50		4964	5778	1.32	0.62	1.05	1.2	1	51.6	5	0.00	1.00	0.1	52		0.651	0.375	2.00		
987	61.5	SP	50		4993	5807	1.32	0.62	1.05	1.2	1	51.4	5	0.00	1.00	0.1	51		0.647	0.374	2.00		
986.5	62	SP	50		5022	5836	1.32	0.62	1.05	1.2	1	51.2	5	0.00	1.00	0.1	51		0.644	0.372	2.00		
986	62.5	SP	50		5051	5865	1.32	0.61	1.05	1.2	1	51.0	5	0.00	1.00	0.1	51		0.640	0.371	2.00		
985.5	63	SP	50		5080	5894	1.32	0.61	1.05	1.2	1	50.8	5	0.00	1.00	0.1	51		0.636	0.370	2.00		
985	63.5	SP	50		5109	5923	1.32	0.61	1.05	1.2	1	50.6	5	0.00	1.00	0.1	51		0.632	0.369	2.00		
984.5	64	SP	50		5138	5952	1.32	0.61	1.05	1.2	1	50.4	5	0.00	1.00	0.1	50		0.629	0.368	2.00		
984	64.5	SP	50		5167	5981	1.32	0.60	1.05	1.2	1	50.2	5	0.00	1.00	0.1	50		0.625	0.368	2.00		
983.5	65	SP	50		5196	6010	1.32	0.60	1.05	1.2	1	50.0	5	0.00	1.00	0.1	50		0.622	0.367	2.00		
983	65.5	SP	50		5225	6039	1.32	0.60	1.05	1.2	1	49.9	5	0.00	1.00	0.1	50		0.619	0.366	2.00		
982.5	66	SP	50		5254	6068	1.32	0.60	1.05	1.2	1	49.7	5	0.00	1.00	0.1	50		0.616	0.365	2.00		
982	66.5	SP	50		5283	6097	1.32	0.60	1.05	1.2	1	49.5	5	0.00	1.00	0.1	50		0.612	0.364	2.00		
981.5	67	SP	50		5312	6126	1.32	0.59	1.05	1.2	1	49.3	5	0.00	1.00	0.1	49		0.609	0.363	2.00		
981	67.5	SP	50		5341	6155	1.32	0.59	1.05	1.2	1	49.1	5	0.00	1.00	0.1	49		0.606	0.362	2.00		
980.5	68	SP	50		5370	6184	1.32	0.59	1.05	1.2	1	48.9	5	0.00	1.00	0.1	49		0.603	0.361	2.00		
980	68.5	SP	50		5399	6213	1.32	0.59	1.05	1.2	1	48.8	5	0.00	1.00	0.1	49		0.600	0.361	2.00		
979.5	69	SP	50		5428	6242	1.32	0.58	1.05	1.2	1	48.6	5	0.00	1.00	0.1	49		0.597	0.360	2.00		
979	69.5	SP	50		5457	6271	1.32	0.58	1.05	1.2	1	48.4	5	0.00	1.00	0.1	48		0.595	0.359	2.00		
978.5	70	SP	50		5486	6300	1.32	0.58	1.05	1.2	1	48.2	5	0.00	1.00	0.1	48		0.592	0.358	2.00		
																							0.048

SPT Liquefaction Spreadsheet

JOB NAME	Prpoosed Temecula Hospital	Boring	GDI-5		
DATE	8/12/2010	*y*	120	pcf	
BY	CJZ	GW level	23	ft	
CHECKED BY		HHGL	17.4	ft	
DATE		GS Elevation	1050	(assumed)	
		LFFE	1057.4		
			Magnitue	a max	
			6.84	0.88	
		MSF	1.27		

Total Settlement 0.76 INCHES

Elevation (MSL)	Depth (feet)	Soil Type	Nfield	Boulanger and Idriss (2006)	σo' (psf) current	σo' (psf) HHGWL	C_E	C_N	C_B	C_S	C_R	$(N_1)_{60}$	Fines Correction			ΔN	$(N_1)_{60}$	CRR 1998 eq.	Rd	CSR	FOS	SETTLEMENT (%)	SETTLEMENT (inches)
					psf	psf	energy	stress	5" diam	w/out liner	rod	interim Corr.	%fines	Alpha	Beta			<N=30					
1049	1	ML	4		120	1008	1.32	1.75	1.05	1.2	0.75		35	5.00	1.20				1.000	**0.054**	2.00		
1048.5	1.5	ML	4		180	1068	1.32	1.71	1.05	1.2	0.75		35	5.00	1.20				0.998	**0.076**	2.00		
1048	2	ML	4		240	1128	1.32	1.68	1.05	1.2	0.75		35	5.00	1.20				0.997	**0.096**	2.00		
1047.5	2.5	ML	4		300	1188	1.32	1.64	1.05	1.2	0.75		35	5.00	1.20				0.996	**0.114**	2.00		
1047	3	ML	4		360	1248	1.32	1.61	1.05	1.2	0.75		35	5.00	1.20				0.995	**0.130**	2.00		
1046.5	3.5	ML	4		420	1308	1.32	1.57	1.05	1.2	0.75		35	5.00	1.20				0.994	**0.145**	2.00		
1046	4	ML	4		480	1368	1.32	1.54	1.05	1.2	0.75		35	5.00	1.20				0.993	**0.158**	2.00		
1045.5	4.5	ML	4		540	1428	1.32	1.51	1.05	1.2	0.75		35	5.00	1.20				0.991	**0.170**	2.00		
1045	5	ML	4		600	1488	1.32	1.48	1.05	1.2	0.75		35	5.00	1.20				0.990	**0.181**	2.00		
1044.5	5.5	ML	11		660	1548	1.32	1.46	1.05	1.2	0.75		35	5.00	1.20				0.989	**0.191**	2.00		
1044	6	ML	11		720	1608	1.32	1.43	1.05	1.2	0.75		35	5.00	1.20				0.988	**0.201**	2.00		
1043.5	6.5	ML	11		780	1668	1.32	1.40	1.05	1.2	0.75		35	5.00	1.20				0.987	**0.210**	2.00		
1043	7	ML	11		840	1728	1.32	1.38	1.05	1.2	0.75		35	5.00	1.20				0.986	**0.218**	2.00		
1042.5	7.5	SP	19		900	1788	1.32	1.35	1.05	1.2	0.75		5	0.00	1.00				0.985	**0.225**	2.00		
1042	8	SP	19		960	1848	1.32	1.33	1.05	1.2	0.75		5	0.00	1.00				0.983	**0.232**	2.00		
1041.5	8.5	SP	19		1020	1908	1.32	1.31	1.05	1.2	0.75		5	0.00	1.00				0.982	**0.238**	2.00		
1041	9	SP	19		1080	1968	1.32	1.29	1.05	1.2	0.75		5	0.00	1.00				0.981	**0.245**	2.00		
1040.5	9.5	SP	19		1140	2028	1.32	1.27	1.05	1.2	0.75		5	0.00	1.00				0.980	**0.250**	2.00		
1040	10	SP	19		1200	2088	1.32	1.24	1.05	1.2	0.75		5	0.00	1.00				0.979	**0.255**	2.00		
1039.5	10.5	SP	21		1260	2148	1.32	1.23	1.05	1.2	0.75		5	0.00	1.00				0.978	**0.260**	2.00		
1039	11	SP	21		1320	2208	1.32	1.21	1.05	1.2	0.75		5	0.00	1.00				0.977	**0.265**	2.00		
1038.5	11.5	SP	21		1380	2268	1.32	1.19	1.05	1.2	0.75		5	0.00	1.00				0.976	**0.270**	2.00		
1038	12	SP	21		1440	2328	1.32	1.17	1.05	1.2	0.75		5	0.00	1.00				0.975	**0.274**	2.00		
1037.5	12.5	SP	21		1500	2388	1.32	1.15	1.05	1.2	0.75		5	0.00	1.00				0.974	**0.278**	2.00		
1037	13	SP	27		1560	2448	1.32	1.14	1.05	1.2	0.85		5	0.00	1.00				0.973	**0.281**	2.00		
1036.5	13.5	SP	27		1620	2508	1.32	1.12	1.05	1.2	0.85		5	0.00	1.00				0.972	**0.285**	2.00		
1036	14	SP	27		1680	2568	1.32	1.10	1.05	1.2	0.85		5	0.00	1.00				0.971	**0.288**	2.00		
1035.5	14.5	SP	27		1740	2628	1.32	1.09	1.05	1.2	0.85		5	0.00	1.00				0.970	**0.291**	2.00		
1035	15	SP	27		1800	2688	1.32	1.07	1.05	1.2	0.85		5	0.00	1.00				0.969	**0.294**	2.00		
1034.5	15.5	SP	51		1860	2748	1.32	1.06	1.05	1.2	0.85		5	0.00	1.00				0.967	**0.297**	2.00		
1034	16	SP	51		1920	2808	1.32	1.04	1.05	1.2	0.85		5	0.00	1.00				0.966	**0.300**	2.00		
1033.5	16.5	SP	51		1980	2868	1.32	1.03	1.05	1.2	0.85		5	0.00	1.00				0.965	**0.303**	2.00		
1033	17	SP	51		2040	2928	1.32	1.02	1.05	1.2	0.85		5	0.00	1.00				0.964	**0.305**	2.00		
1032.5	17.5	SP	51		2100	2982	1.32	1.00	1.05	1.2	0.85	72.3	5	0.00	1.00	0.1	**72**		0.963	**0.308**	2.00		
1032	18	SP	30		2160	3011	1.32	0.99	1.05	1.2	0.85	42.0	5	0.00	1.00	0.1	**42**		0.962	**0.313**	2.00		
1031.5	18.5	SP	30		2220	3040	1.32	0.98	1.05	1.2	0.85	41.5	5	0.00	1.00	0.1	**42**		0.961	**0.319**	2.00		
1031	19	SP	30		2280	3069	1.32	0.97	1.05	1.2	0.85	41.0	5	0.00	1.00	0.1	**41**		0.959	**0.324**	2.00		
1030.5	19.5	SP	30		2340	3098	1.32	0.95	1.05	1.2	0.85	40.5	5	0.00	1.00	0.1	**41**		0.958	**0.329**	2.00		
1030	20	SP	30		2400	3127	1.32	0.94	1.05	1.2	0.95	44.7	5	0.00	1.00	0.1	**45**		0.957	**0.333**	2.00		
1029.5	20.5	ML	9		2460	3156	1.32	0.93	1.05	1.2	0.95	13.2	65	5.00	1.20	7.6	**21**	0.227	0.956	**0.338**	0.85	0.014	0.084
1029	21	ML	9		2520	3185	1.32	0.92	1.05	1.2	0.95	13.1	65	5.00	1.20	7.6	**21**	0.224	0.954	**0.343**	0.83	0.014	0.084
1028.5	21.5	ML	9		2580	3214	1.32	0.91	1.05	1.2	0.95	12.9	65	5.00	1.20	7.6	**21**	0.222	0.953	**0.347**	0.81	0.014	0.084
1028	22	ML	9		2640	3243	1.32	0.90	1.05	1.2	0.95	12.8	65	5.00	1.20	7.6	**20**	0.220	0.951	**0.352**	0.79	0.014	0.084
1027.5	22.5	ML	9	YES	2700	3272	1.32	0.89	1.05	1.2	0.95	12.6	65	5.00	1.20	7.5	**20**	0.217	0.950	**0.356**	0.77	0.014	0.000
1027	23	ML	9	YES	2760	3301	1.32	0.88	1.05	1.2	0.95	12.5	69	5.00	1.20	7.5	**20**	0.215	0.948	**0.360**	0.76	0.015	0.000
1026.5	23.5	ML	9	YES	2789	3330	1.32	0.87	1.05	1.2	0.95	12.4	69	5.00	1.20	7.5	**20**	0.214	0.947	**0.364**	0.74	0.015	0.000
1026	24	ML	9	YES	2818	3359	1.32	0.87	1.05	1.2	0.95	12.4	69	5.00	1.20	7.5	**20**	0.213	0.945	**0.368**	0.73	0.015	0.000
1025.5	24.5	ML	9	YES	2847	3388	1.32	0.86	1.05	1.2	0.95	12.3	69	5.00	1.20	7.5	**20**	0.212	0.944	**0.372**	0.72	0.015	0.000
1025	25	SP	21		2876	3417	1.32	0.86	1.05	1.2	0.95	28.5	11	1.17	1.03	1.9	**30**		0.942	**0.375**	2.00		
1024.5	25.5	SP	21		2905	3446	1.32	0.86	1.05	1.2	0.95	28.4	11	1.17	1.03	1.9	**30**		0.940	**0.379**	2.00		
1024	26	SP	21		2934	3475	1.32	0.85	1.05	1.2	0.95	28.2	11	1.17	1.03	1.9	**30**		0.938	**0.382**	2.00		
1023.5	26.5	SP	21		2963	3504	1.32	0.85	1.05	1.2	0.95	28.1	11	1.17	1.03	1.9	**30**	0.466	0.936	**0.386**	1.53	0.000	0.001
1023	27	SP	21		2992	3533	1.32	0.84	1.05	1.2	0.95	27.9	11	1.04	1.02	1.7	**30**	0.444	0.934	**0.389**	1.44	0.000	0.001
1022.5	27.5	SP	21		3021	3562	1.32	0.84	1.05	1.2	0.95	27.8	11	1.04	1.02	1.7	**29**	0.435	0.932	**0.392**	1.40	0.000	0.002
1022	28	SP	30		3050	3591	1.32	0.83	1.05	1.2	0.95	39.5	5	0.00	1.00	0.0	**40**		0.930	**0.395**	2.00		
1021.5	28.5	SP	30		3079	3620	1.32	0.83	1.05	1.2	0.95	39.3	5	0.00	1.00	0.0	**39**		0.928	**0.398**	2.00		
1021	29	SP	30		3108	3649	1.32	0.82	1.05	1.2	0.95	39.1	5	0.00	1.00	0.0	**39**		0.925	**0.401**	2.00		
1020.5	29.5	SP	30		3137	3678	1.32	0.82	1.05	1.2	0.95	38.9	5	0.00	1.00	0.0	**39**		0.923	**0.403**	2.00		

1020	30	SP	30		3166	3707	1.32	0.82	1.05	1.2	0.95	38.7	5	0.00	1.00	0.0	39		0.921	0.406	2.00				
1019.5	30.5	SP-SM	18		3195	3736	1.32	0.81	1.05	1.2	0.95	23.1	10	0.87	1.02	1.4	24	0.282	0.918	0.408	0.87	0.014	0.084		
1019	31	SP-SM	18		3224	3765	1.32	0.81	1.05	1.2	0.95	23.0	10	0.87	1.02	1.4	24	0.279	0.915	0.411	0.86	0.014	0.084		
1018.5	31.5	SP-SM	18		3253	3794	1.32	0.80	1.05	1.2	0.95	22.9	10	0.87	1.02	1.4	24	0.277	0.913	0.413	0.85	0.014	0.084		
1018	32	SP-SM	18		3282	3823	1.32	0.80	1.05	1.2	0.95	22.7	10	0.87	1.02	1.4	24	0.275	0.910	0.415	0.84	0.014	0.084		
1017.5	32.5	SP-SM	18		3311	3852	1.32	0.80	1.05	1.2	0.95	22.6	10	0.87	1.02	1.4	24	0.273	0.907	0.417	0.83	0.014	0.084		
1017	33	CL	12	YES	3340	3881	1.32	0.79	1.05	1.2	1	15.8	10	0.87	1.02	1.2	17	0.181	0.904	0.419	0.55	0.016	0.000		
1016.5	33.5	CL	12	YES	3369	3910	1.32	0.79	1.05	1.2	1	15.7	10	0.87	1.02	1.2	17	0.180	0.901	0.420	0.54	0.016	0.000		
1016	34	CL	12	YES	3398	3939	1.32	0.78	1.05	1.2	1	15.6	10	0.87	1.02	1.2	17	0.179	0.897	0.422	0.54	0.016	0.000		
1015.5	34.5	CL	12	YES	3427	3968	1.32	0.78	1.05	1.2	1	15.6	10	0.87	1.02	1.2	17	0.178	0.894	0.424	0.53	0.016	0.000		
1015	35	CL	12	YES	3456	3997	1.32	0.78	1.05	1.2	1	15.5	10	0.87	1.02	1.2	17	0.178	0.891	0.425	0.53	0.016	0.000		
1014.5	35.5	SP-SM	40		3485	4026	1.32	0.77	1.05	1.2	1	51.4	10	0.87	1.02	2.0	53		0.887	0.426	2.00				
1014	36	SP-SM	40		3514	4055	1.32	0.77	1.05	1.2	1	51.2	10	0.87	1.02	2.0	53		0.883	0.427	2.00				
1013.5	36.5	SP-SM	40		3543	4084	1.32	0.77	1.05	1.2	1	50.9	10	0.87	1.02	2.0	53		0.880	0.428	2.00				
1013	37	SP-SM	40		3572	4113	1.32	0.76	1.05	1.2	1	50.7	10	0.87	1.02	2.0	53		0.876	0.429	2.00				
1012.5	37.5	SP-SM	40		3601	4142	1.32	0.76	1.05	1.2	1	50.4	10	0.87	1.02	2.0	52		0.872	0.430	2.00				
1012	38	SM-SP	36		3630	4171	1.32	0.75	1.05	1.2	1	45.2	10	0.87	1.02	1.8	47		0.868	0.431	2.00				
1011.5	38.5	SM-SP	36		3659	4200	1.32	0.75	1.05	1.2	1	45.0	10	0.87	1.02	1.8	47		0.864	0.431	2.00				
1011	39	SM-SP	36		3688	4229	1.32	0.75	1.05	1.2	1	44.8	10	0.87	1.02	1.8	47		0.860	0.432	2.00				
1010.5	39.5	SM-SP	36		3717	4258	1.32	0.74	1.05	1.2	1	44.6	10	0.87	1.02	1.8	46		0.855	0.432	2.00				
1010	40	SM-SP	36		3746	4287	1.32	0.74	1.05	1.2	1	44.3	10	0.87	1.02	1.8	46		0.851	0.433	2.00				
1009.5	40.5	SM-SP	34		3775	4316	1.32	0.74	1.05	1.2	1	41.1	10	0.87	1.02	1.8	43		0.847	0.433	2.00				
1009	41	SM-SP	34		3804	4345	1.32	0.73	1.05	1.2	1	41.5	10	0.87	1.02	1.8	43		0.842	0.433	2.00				
1008.5	41.5	SM-SP	34		3833	4374	1.32	0.73	1.05	1.2	1	41.3	10	0.87	1.02	1.8	43		0.837	0.433	2.00				
1008	42	SM-SP	34		3862	4403	1.32	0.73	1.05	1.2	1	41.1	10	0.87	1.02	1.8	43		0.833	0.433	2.00				
1007.5	42.5	SM-SP	34		3891	4432	1.32	0.72	1.05	1.2	1	40.9	10	0.87	1.02	1.8	43		0.828	0.433	2.00				
1007	43	SM-SP	34		3920	4461	1.32	0.72	1.05	1.2	1	40.8	10	0.87	1.02	1.8	43		0.823	0.432	2.00				
1006.5	43.5	ML	34		3949	4490	1.32	0.72	1.05	1.2	1	40.6	35	5.00	1.20	13.1	54		0.818	0.432	2.00				
1006	44	ML	34		3978	4519	1.32	0.71	1.05	1.2	1	40.4	35	5.00	1.20	13.1	53		0.814	0.432	2.00				
1005.5	44.5	SP	50		4007	4548	1.32	0.71	1.05	1.2	1	59.1	5	0.00	1.00	0.1	59		0.809	0.431	2.00				
1005	45	SP	50		4036	4577	1.32	0.71	1.05	1.2	1	58.9	5	0.00	1.00	0.1	59		0.804	0.431	2.00				
1004.5	45.5	SP	50		4065	4606	1.32	0.70	1.05	1.2	1	58.6	5	0.00	1.00	0.1	59		0.799	0.430	2.00				
1004	46	SP	50		4094	4635	1.32	0.70	1.05	1.2	1	58.4	5	0.00	1.00	0.1	58		0.794	0.429	2.00				
1003.5	46.5	SP	50		4123	4664	1.32	0.70	1.05	1.2	1	58.1	5	0.00	1.00	0.1	58		0.788	0.428	2.00				
1003	47	SP	50		4152	4693	1.32	0.70	1.05	1.2	1	57.9	5	0.00	1.00	0.1	58		0.783	0.427	2.00				
1002.5	47.5	SP	50		4181	4722	1.32	0.69	1.05	1.2	1	57.6	5	0.00	1.00	0.1	58		0.778	0.427	2.00				
1002	48	SP	50		4210	4751	1.32	0.69	1.05	1.2	1	57.4	5	0.00	1.00	0.1	57		0.773	0.426	2.00				
1001.5	48.5	SP	50		4239	4780	1.32	0.69	1.05	1.2	1	57.1	5	0.00	1.00	0.1	57		0.768	0.425	2.00				
1001	49	SP	50		4268	4809	1.32	0.68	1.05	1.2	1	56.9	5	0.00	1.00	0.1	57		0.763	0.424	2.00				
1000.5	49.5	SP	50		4297	4838	1.32	0.68	1.05	1.2	1	56.6	5	0.00	1.00	0.1	57		0.758	0.422	2.00				
1000	50	SP	50		4326	4867	1.32	0.68	1.05	1.2	1	56.4	5	0.00	1.00	0.1	56		0.753	0.421	2.00				
999.5	50.5	SP	50		4355	4896	1.32	0.68	1.05	1.2	1	56.2	5	0.00	1.00	0.1	56		0.748	0.420	2.00				
999	51	SP	50		4384	4925	1.32	0.67	1.05	1.2	1	55.9	5	0.00	1.00	0.1	56		0.743	0.419	2.00				
998.5	51.5	SP	50		4413	4954	1.32	0.67	1.05	1.2	1	55.7	5	0.00	1.00	0.1	56		0.738	0.418	2.00				
998	52	SP	50		4442	4983	1.32	0.67	1.05	1.2	1	55.5	5	0.00	1.00	0.1	56		0.733	0.417	2.00				
997.5	52.5	SP	50		4471	5012	1.32	0.66	1.05	1.2	1	55.2	5	0.00	1.00	0.1	55		0.728	0.415	2.00				
997	53	SP	50		4500	5041	1.32	0.66	1.05	1.2	1	55.0	5	0.00	1.00	0.1	55		0.723	0.414	2.00				
996.5	53.5	SP	50		4529	5070	1.32	0.66	1.05	1.2	1	54.8	5	0.00	1.00	0.1	55		0.718	0.413	2.00				
996	54	SP	50		4558	5099	1.32	0.66	1.05	1.2	1	54.5	5	0.00	1.00	0.1	55		0.713	0.411	2.00				
995.5	54.5	SP	50		4587	5128	1.32	0.65	1.05	1.2	1	54.3	5	0.00	1.00	0.1	54		0.708	0.410	2.00				
995	55	SP	50		4616	5157	1.32	0.65	1.05	1.2	1	54.1	5	0.00	1.00	0.1	54		0.703	0.409	2.00				
994.5	55.5	SP	50		4645	5186	1.32	0.65	1.05	1.2	1	53.9	5	0.00	1.00	0.1	54		0.699	0.407	2.00				
994	56	SP	50		4674	5215	1.32	0.65	1.05	1.2	1	53.7	5	0.00	1.00	0.1	54		0.694	0.406	2.00				
993.5	56.5	SP	50		4703	5244	1.32	0.64	1.05	1.2	1	53.5	5	0.00	1.00	0.1	54		0.689	0.405	2.00				
993	57	SP	50		4732	5273	1.32	0.64	1.05	1.2	1	53.2	5	0.00	1.00	0.1	53		0.685	0.403	2.00				
992.5	57.5	SP	50		4761	5302	1.32	0.64	1.05	1.2	1	53.0	5	0.00	1.00	0.1	53		0.680	0.402	2.00				
992	58	ML	50		4790	5331	1.32	0.64	1.05	1.2	1	52.8	35	5.00	1.20	15.6	68		0.676	0.401	2.00				
991.5	58.5	ML	50		4819	5360	1.32	0.63	1.05	1.2	1	52.6	35	5.00	1.20	15.5	68		0.672	0.399	2.00				
991	59	SP	50		4848	5389	1.32	0.63	1.05	1.2	1	52.4	5	0.00	1.00	0.1	52		0.668	0.398	2.00				
990.5	59.5	SP	50		4877	5418	1.32	0.63	1.05	1.2	1	52.2	5	0.00	1.00	0.1	52		0.663	0.397	2.00				
990	60	SP	50		4906	5447	1.32	0.63	1.05	1.2	1	52.0	5	0.00	1.00	0.1	52		0.659	0.396	2.00				
989.5	60.5	SP	50		4935	5476	1.32	0.62	1.05	1.2	1	51.8	5	0.00	1.00	0.1	52		0.655	0.394	2.00				
989	61	SP	50		4964	5505	1.32	0.62	1.05	1.2	1	51.6	5	0.00	1.00	0.1	52		0.651	0.393	2.00				
988.5	61.5	SP	50		4993	5534	1.32	0.62	1.05	1.2	1	51.4	5	0.00	1.00	0.1	51		0.647	0.392	2.00				
988	62	SP	50		5022	5563	1.32	0.62	1.05	1.2	1	51.2	5	0.00	1.00	0.1	51		0.644	0.391	2.00				
987.5	62.5	SP	50		5051	5592	1.32	0.61	1.05	1.2	1	51.0	5	0.00	1.00	0.1	51		0.640	0.390	2.00				
987	63	SP	50		5080	5621	1.32	0.61	1.05	1.2	1	50.8	5	0.00	1.00	0.1	51		0.636	0.388	2.00				
986.5	63.5	SP	50		5109	5650	1.32	0.61	1.05	1.2	1	50.6	5	0.00	1.00	0.1	51		0.632	0.387	2.00				
986	64	SP	50		5138	5679	1.32	0.61	1.05	1.2	1	50.4	5	0.00	1.00	0.1	50		0.629	0.386	2.00				
985.5	64.5	SP	50		5167	5708	1.32	0.60	1.05	1.2	1	50.2	5	0.00	1.00	0.1	50		0.625	0.385	2.00				
985	65	SP	50		5196	5737	1.32	0.60	1.05	1.2	1	50.0	5	0.00	1.00	0.1	50		0.622	0.384	2.00				
984.5	65.5	SP	50		5225	5766	1.32	0.60	1.05	1.2	1	49.9	5	0.00	1.00	0.1	50		0.619	0.383	2.00				
984	66	SP	50		5254	5795	1.32	0.60	1.05	1.2	1	49.7	5	0.00	1.00	0.1	50		0.616	0.382	2.00				
983.5	66.5	SP	50		5283	5824	1.32	0.60	1.05	1.2	1	49.5	5	0.00	1.00	0.1	50		0.612	0.381	2.00				
983	67	SP	50		5312	5853	1.32	0.59	1.05	1.2	1	49.3	5	0.00	1.00	0.1	49		0.609	0.380	2.00				
982.5	67.5	SP	50		5341	5882	1.32	0.59	1.05	1.2	1	49.1	5	0.00	1.00	0.1	49		0.606	0.379	2.00				
982	68	SP	50		5370	5911	1.32	0.59	1.05	1.2	1	48.9	5	0.00	1.00	0.1	49		0.603	0.378	2.00				
981.5	68.5	SP	50		5399	5940	1.32	0.59	1.05	1.2	1	48.8	5	0.00	1.00	0.1	49		0.600	0.377	2.00				
981	69	SP	50		5428	5969	1.32	0.58	1.05	1.2	1	48.6	5	0.00	1.00	0.1	49		0.597	0.376	2.00				
980.5	69.5	SP	50		5457	5998	1.32	0.58	1.05	1.2	1	48.4	5	0.00	1.00	0.1	48		0.595	0.375	2.00				
980	70	SP	50		5486	6027	1.32	0.58	1.05	1.2	1	48.2	5	0.00	1.00	0.1	48		0.592	0.375	2.00				
																									0.760

SPT Liquefaction Spreadsheet

JOB NAME	Prpoosed Temecula Hospital	Boring	GDI-6		
DATE	8/12/2010	*y*	120	pcf	
BY	CJZ	GW level	27.5	ft	
CHECKED BY		HHGL	11.9	ft	
DATE		GS Elevation	1055.5		
		LFFE	1057.4		

Magnitue	a max
6.84	0.88

MSF 1.27

Total Settlement 0.07 INCHES

Elevation (MSL)	Depth (feet)	Soil Type	Nfield	Boulanger and Idress (2006)	σo' (psf) current	σo' (psf) HHGWL	C_E	C_N	C_B	C_S	C_R	$(N_1)_{60}$	Fines Correction			ΔN	$(N_1)_{60}$	CRR 1998 eq.	Rd	CSR	FOS	SETTLEMENT (%)	SETTLEMENT (inches)
					psf	psf	energy	stress	5" diam	w/out liner	rod	interim Corr.	%fines	Alpha	Beta			<N=30					
1054.5	1	SP-SM	30		120	348	1.32	1.75	1.05	1.2	0.75		5	0.00	1.00				1.000	**0.156**	2.00		
1054	1.5	SP-SM	30		180	408	1.32	1.71	1.05	1.2	0.75		5	0.00	1.00				0.998	**0.200**	2.00		
1053.5	2	SP-SM	30		240	468	1.32	1.68	1.05	1.2	0.75		5	0.00	1.00				0.997	**0.232**	2.00		
1053	2.5	SP-SM	30		300	528	1.32	1.64	1.05	1.2	0.75		5	0.00	1.00				0.996	**0.257**	2.00		
1052.5	3	SP-SM	30		360	588	1.32	1.61	1.05	1.2	0.75		5	0.00	1.00				0.995	**0.277**	2.00		
1052	3.5	SP-SM	30		420	648	1.32	1.57	1.05	1.2	0.75		5	0.00	1.00				0.994	**0.292**	2.00		
1051.5	4	SP-SM	30		480	708	1.32	1.54	1.05	1.2	0.75		5	0.00	1.00				0.993	**0.306**	2.00		
1051	4.5	SP-SM	30		540	768	1.32	1.51	1.05	1.2	0.75		5	0.00	1.00				0.991	**0.317**	2.00		
1050.5	5	SP	20		600	828	1.32	1.48	1.05	1.2	0.75		5	0.00	1.00				0.990	**0.326**	2.00		
1050	5.5	SP	20		660	888	1.32	1.46	1.05	1.2	0.75		5	0.00	1.00				0.989	**0.334**	2.00		
1049.5	6	SP	20		720	948	1.32	1.43	1.05	1.2	0.75		5	0.00	1.00				0.988	**0.341**	2.00		
1049	6.5	SP	20		780	1008	1.32	1.40	1.05	1.2	0.75		5	0.00	1.00				0.987	**0.347**	2.00		
1048.5	7	SP	20		840	1068	1.32	1.38	1.05	1.2	0.75		5	0.00	1.00				0.986	**0.352**	2.00		
1048	7.5	SP	20		900	1128	1.32	1.35	1.05	1.2	0.75		5	0.00	1.00				0.985	**0.357**	2.00		
1047.5	8	SP	12		960	1188	1.32	1.33	1.05	1.2	0.75		5	0.00	1.00				0.983	**0.361**	2.00		
1047	8.5	SP	12		1020	1248	1.32	1.31	1.05	1.2	0.75		5	0.00	1.00				0.982	**0.365**	2.00		
1046.5	9	SP	12		1080	1308	1.32	1.29	1.05	1.2	0.75		5	0.00	1.00				0.981	**0.368**	2.00		
1046	9.5	SP	12		1140	1368	1.32	1.27	1.05	1.2	0.75		5	0.00	1.00				0.980	**0.371**	2.00		
1045.5	10	SP	12		1200	1428	1.32	1.24	1.05	1.2	0.75		19	3.43	1.07				0.979	**0.374**	2.00		
1045	10.5	SP	20		1260	1488	1.32	1.23	1.05	1.2	0.75		19	3.43	1.07				0.978	**0.376**	2.00		
1044.5	11	SP	20		1320	1548	1.32	1.21	1.05	1.2	0.75		19	3.43	1.07				0.977	**0.378**	2.00		
1044	11.5	SP	20		1380	1608	1.32	1.19	1.05	1.2	0.75		19	3.43	1.07				0.976	**0.380**	2.00		
1043.5	12	SP	20		1440	1662	1.32	1.17	1.05	1.2	0.75	29.2	19	3.43	1.07	5.6	**35**		0.975	**0.384**	2.00		
1043	12.5	SP	17		1500	1691	1.32	1.15	1.05	1.2	0.75	24.4	11	1.21	1.03	1.9	**26**	0.320	0.974	**0.392**	1.03	0.003	0.017
1042.5	13	SP	17		1560	1720	1.32	1.14	1.05	1.2	0.85	27.3	11	1.21	1.03	1.9	**29**	0.421	0.973	**0.401**	1.33	0.000	0.002
1042	13.5	SP	17		1620	1749	1.32	1.12	1.05	1.2	0.85	26.9	11	1.21	1.03	1.9	**29**	0.402	0.972	**0.409**	1.24	0.001	0.005
1041.5	14	SP	17		1680	1778	1.32	1.10	1.05	1.2	0.85	26.5	11	1.21	1.03	1.9	**28**	0.386	0.971	**0.416**	1.17	0.001	0.005
1041	14.5	SP	17		1740	1807	1.32	1.09	1.05	1.2	0.85	26.1	11	1.21	1.03	1.9	**28**	0.371	0.970	**0.424**	1.11	0.002	0.010
1040.5	15	SP	17		1800	1836	1.32	1.07	1.05	1.2	0.85	25.8	11	1.21	1.03	1.9	**28**	0.359	0.969	**0.431**	1.05	0.003	0.017
1040	15.5	SP	17		1860	1865	1.32	1.06	1.05	1.2	0.85	25.4	11	1.21	1.03	1.9	**27**	0.347	0.967	**0.438**	1.00	0.003	0.017
1039.5	16	MH	20	YES	1920	1894	1.32	1.04	1.05	1.2	0.85	29.5	35	5.00	1.20	10.9	**40**		0.966	**0.445**	2.00		
1039	16.5	MH	20	YES	1980	1923	1.32	1.03	1.05	1.2	0.85	29.1	35	5.00	1.20	10.8	**40**		0.965	**0.451**	2.00		
1038.5	17	MH	20	YES	2040	1952	1.32	1.02	1.05	1.2	0.85	28.7	35	5.00	1.20	10.7	**39**		0.964	**0.458**	2.00		
1038	17.5	MH	20	YES	2100	1981	1.32	1.00	1.05	1.2	0.85	28.4	35	5.00	1.20	10.7	**39**		0.963	**0.464**	2.00		
1037.5	18	MH	20	YES	2160	2010	1.32	0.99	1.05	1.2	0.85	28.0	35	5.00	1.20	10.6	**39**		0.962	**0.469**	2.00		
1037	18.5	MH	20	YES	2220	2039	1.32	0.98	1.05	1.2	0.85	27.7	35	5.00	1.20	10.5	**38**		0.961	**0.475**	2.00		
1036.5	19	MH	20	YES	2280	2068	1.32	0.97	1.05	1.2	0.85	27.3	35	5.00	1.20	10.5	**38**		0.959	**0.480**	2.00		
1036	19.5	SP	36		2340	2097	1.32	0.95	1.05	1.2	0.85	48.6	13	1.89	1.04	3.7	**52**		0.958	**0.486**	2.00		
1035.5	20	SP	36		2400	2126	1.32	0.94	1.05	1.2	0.95	53.6	13	1.89	1.04	3.9	**57**		0.957	**0.491**	2.00		
1035	20.5	SP	36		2460	2155	1.32	0.93	1.05	1.2	0.95	53.0	13	1.89	1.04	3.8	**57**		0.956	**0.495**	2.00		
1034.5	21	SP	36		2520	2184	1.32	0.92	1.05	1.2	0.95	52.3	13	1.89	1.04	3.8	**56**		0.954	**0.500**	2.00		
1034	21.5	SP	36		2580	2213	1.32	0.91	1.05	1.2	0.95	51.7	13	1.89	1.04	3.8	**56**		0.953	**0.504**	2.00		
1033.5	22	SP	36		2640	2242	1.32	0.90	1.05	1.2	0.95	51.1	13	1.89	1.04	3.8	**55**		0.951	**0.509**	2.00		
1033	22.5	SP	36		2700	2271	1.32	0.89	1.05	1.2	0.95	50.5	13	1.89	1.04	3.8	**54**		0.950	**0.513**	2.00		
1032.5	23	SP	34		2760	2300	1.32	0.88	1.05	1.2	0.95	47.2	13	1.89	1.04	3.6	**51**		0.948	**0.517**	2.00		
1032	23.5	SP	34		2820	2329	1.32	0.87	1.05	1.2	0.95	46.7	13	1.89	1.04	3.6	**50**		0.947	**0.521**	2.00		
1031.5	24	SP	34		2880	2358	1.32	0.86	1.05	1.2	0.95	46.1	13	1.89	1.04	3.6	**50**		0.945	**0.524**	2.00		
1031	24.5	SP	34		2940	2387	1.32	0.85	1.05	1.2	0.95	45.6	13	1.89	1.04	3.6	**49**		0.944	**0.528**	2.00		
1030.5	25	SP	34		3000	2416	1.32	0.84	1.05	1.2	0.95	45.1	13	1.89	1.04	3.6	**49**		0.942	**0.531**	2.00		
1030	25.5	SP	53		3060	2445	1.32	0.83	1.05	1.2	0.95	69.6	13	1.89	1.04	4.5	**74**		0.940	**0.534**	2.00		
1029.5	26	SP	53		3120	2474	1.32	0.82	1.05	1.2	0.95	68.9	13	1.89	1.04	4.4	**73**		0.938	**0.537**	2.00		
1029	26.5	ML	53		3180	2503	1.32	0.81	1.05	1.2	0.95	68.2	35	5.00	1.20	18.6	**87**		0.936	**0.540**	2.00		
1028.5	27	SP	56		3240	2532	1.32	0.81	1.05	1.2	0.95	71.3	5	0.00	1.00	0.1	**71**		0.934	**0.543**	2.00		
1028	27.5	SP	56		3300	2561	1.32	0.80	1.05	1.2	0.95	70.5	5	0.00	1.00	0.1	**71**		0.932	**0.545**	2.00		
1027.5	28	SP	56		3329	2590	1.32	0.79	1.05	1.2	0.95	70.2	5	0.00	1.00	0.1	**70**		0.930	**0.548**	2.00		
1027	28.5	SP	56		3358	2619	1.32	0.79	1.05	1.2	0.95	69.8	5	0.00	1.00	0.1	**70**		0.928	**0.550**	2.00		
1026.5	29	SP	56		3387	2648	1.32	0.79	1.05	1.2	0.95	69.5	5	0.00	1.00	0.1	**70**		0.925	**0.552**	2.00		
1026	29.5	SP	56		3416	2677	1.32	0.78	1.05	1.2	0.95	69.2	5	0.00	1.00	0.1	**69**		0.923	**0.554**	2.00		

1025.5	30	SP	56		3445	2706	1.32	0.78	1.05	1.2	0.95	68.8	5	0.00	1.00	0.1	69		0.921	0.556	2.00		
1025	30.5	CL	76	YES	3474	2735	1.32	0.77	1.05	1.2	0.95	93.0	5	0.00	1.00	0.1	93		0.918	0.558	2.00		
1024.5	31	CL	24	YES	3503	2764	1.32	0.77	1.05	1.2	0.95	29.2	5	0.00	1.00	0.0	29	0.423	0.915	0.559	0.96	0.011	0.000
1024	31.5	CL	24	YES	3532	2793	1.32	0.77	1.05	1.2	0.95	29.1	5	0.00	1.00	0.0	29	0.416	0.913	0.561	0.94	0.011	0.000
1023.5	32	CL	24	YES	3561	2822	1.32	0.76	1.05	1.2	0.95	28.9	5	0.00	1.00	0.0	29	0.409	0.910	0.562	0.92	0.011	0.000
1023	32.5	CL	24	YES	3590	2851	1.32	0.76	1.05	1.2	0.95	28.8	5	0.00	1.00	0.0	29	0.403	0.907	0.563	0.90	0.011	0.000
1022.5	33	CL	24	YES	3619	2880	1.32	0.76	1.05	1.2	1	30.2	5	0.00	1.00	0.0	30		0.904	0.564	2.00		
1022	33.5	CL	24	YES	3648	2909	1.32	0.75	1.05	1.2	1	30.0	5	0.00	1.00	0.0	30		0.901	0.565	2.00		
1021.5	34	CL	24	YES	3677	2938	1.32	0.75	1.05	1.2	1	29.9	5	0.00	1.00	0.0	30	0.463	0.897	0.566	1.04	0.003	0.000
1021	34.5	CL	24	YES	3706	2967	1.32	0.75	1.05	1.2	1	29.8	5	0.00	1.00	0.0	30	0.454	0.894	0.566	1.01	0.003	0.000
1020.5	35	CL	24	YES	3735	2996	1.32	0.74	1.05	1.2	1	29.6	5	0.00	1.00	0.0	30	0.445	0.891	0.567	0.99	0.011	0.000
1020	35.5	CL	24	YES	3764	3025	1.32	0.74	1.05	1.2	1	29.5	5	0.00	1.00	0.0	30	0.437	0.887	0.567	0.98	0.011	0.000
1019.5	36	CL	24	YES	3793	3054	1.32	0.74	1.05	1.2	1	29.3	5	0.00	1.00	0.0	29	0.430	0.883	0.567	0.96	0.011	0.000
1019	36.5	CL	24	YES	3822	3083	1.32	0.73	1.05	1.2	1	29.2	5	0.00	1.00	0.0	29	0.423	0.880	0.568	0.94	0.011	0.000
1018.5	37	CL	24	YES	3851	3112	1.32	0.73	1.05	1.2	1	29.1	5	0.00	1.00	0.0	29	0.416	0.876	0.567	0.93	0.011	0.000
1018	37.5	CL	24	YES	3880	3141	1.32	0.73	1.05	1.2	1	28.9	5	0.00	1.00	0.0	29	0.410	0.872	0.567	0.91	0.011	0.000
1017.5	38	SW	50		3909	3170	1.32	0.72	1.05	1.2	1	60.0	5	0.00	1.00	0.1	60		0.868	0.567	2.00		
1017	38.5	SW	50		3938	3199	1.32	0.72	1.05	1.2	1	59.8	5	0.00	1.00	0.1	60		0.864	0.566	2.00		
1016.5	39	SW	50		3967	3228	1.32	0.72	1.05	1.2	1	59.5	5	0.00	1.00	0.1	60		0.860	0.566	2.00		
1016	39.5	SW	50		3996	3257	1.32	0.71	1.05	1.2	1	59.2	5	0.00	1.00	0.1	59		0.855	0.565	2.00		
1015.5	40	SW	50		4025	3286	1.32	0.71	1.05	1.2	1	59.0	5	0.00	1.00	0.1	59		0.851	0.564	2.00		
1015	40.5	SW	50		4054	3315	1.32	0.71	1.05	1.2	1	58.7	5	0.00	1.00	0.1	59		0.847	0.564	2.00		
1014.5	41	SW	50		4083	3344	1.32	0.70	1.05	1.2	1	58.5	5	0.00	1.00	0.1	59		0.842	0.563	2.00		
1014	41.5	SW	50		4112	3373	1.32	0.70	1.05	1.2	1	58.2	5	0.00	1.00	0.1	58		0.837	0.561	2.00		
1013.5	42	SW	50		4141	3402	1.32	0.70	1.05	1.2	1	58.0	5	0.00	1.00	0.1	58		0.833	0.560	2.00		
1013	42.5	SW	50		4170	3431	1.32	0.69	1.05	1.2	1	57.7	5	0.00	1.00	0.1	58		0.828	0.559	2.00		
1012.5	43	SW	50		4199	3460	1.32	0.69	1.05	1.2	1	57.5	5	0.00	1.00	0.1	58		0.823	0.558	2.00		
1012	43.5	SW	50		4228	3489	1.32	0.69	1.05	1.2	1	57.2	5	0.00	1.00	0.1	57		0.818	0.556	2.00		
1011.5	44	SW	50		4257	3518	1.32	0.68	1.05	1.2	1	57.0	5	0.00	1.00	0.1	57		0.814	0.554	2.00		
1011	44.5	SW	50		4286	3547	1.32	0.68	1.05	1.2	1	56.7	5	0.00	1.00	0.1	57		0.809	0.553	2.00		
1010.5	45	SW	50		4315	3576	1.32	0.68	1.05	1.2	1	56.5	5	0.00	1.00	0.1	57		0.804	0.551	2.00		
1010	45.5	SW	50		4344	3605	1.32	0.68	1.05	1.2	1	56.2	5	0.00	1.00	0.1	56		0.799	0.549	2.00		
1009.5	46	SW	50		4373	3634	1.32	0.67	1.05	1.2	1	56.0	5	0.00	1.00	0.1	56		0.794	0.547	2.00		
1009	46.5	SW	50		4402	3663	1.32	0.67	1.05	1.2	1	55.8	5	0.00	1.00	0.1	56		0.788	0.545	2.00		
1008.5	47	SW	50		4431	3692	1.32	0.67	1.05	1.2	1	55.5	5	0.00	1.00	0.1	56		0.783	0.543	2.00		
1008	47.5	SW	50		4460	3721	1.32	0.67	1.05	1.2	1	55.3	5	0.00	1.00	0.1	55		0.778	0.541	2.00		
1007.5	48	SW	50		4489	3750	1.32	0.66	1.05	1.2	1	55.1	5	0.00	1.00	0.1	55		0.773	0.539	2.00		
1007	48.5	SW	50		4518	3779	1.32	0.66	1.05	1.2	1	54.9	5	0.00	1.00	0.1	55		0.768	0.537	2.00		
1006.5	49	SW	50		4547	3808	1.32	0.66	1.05	1.2	1	54.6	5	0.00	1.00	0.1	55		0.763	0.535	2.00		
1006	49.5	SW	50		4576	3837	1.32	0.65	1.05	1.2	1	54.4	5	0.00	1.00	0.1	54		0.758	0.533	2.00		
1005.5	50	SW	50		4605	3866	1.32	0.65	1.05	1.2	1	54.2	5	0.00	1.00	0.1	54		0.753	0.530	2.00		
1005	50.5	SW	50		4634	3895	1.32	0.65	1.05	1.2	1	54.0	5	0.00	1.00	0.1	54		0.748	0.528	2.00		
1004.5	51	SW	50		4663	3924	1.32	0.65	1.05	1.2	1	53.8	5	0.00	1.00	0.1	54		0.743	0.526	2.00		
1004	51.5	SW	50		4692	3953	1.32	0.64	1.05	1.2	1	53.5	5	0.00	1.00	0.1	54		0.738	0.524	2.00		
1003.5	52	SW	50		4721	3982	1.32	0.64	1.05	1.2	1	53.3	5	0.00	1.00	0.1	53		0.733	0.521	2.00		
1003	52.5	SW	50		4750	4011	1.32	0.64	1.05	1.2	1	53.1	5	0.00	1.00	0.1	53		0.728	0.519	2.00		
1002.5	53	SW	50		4779	4040	1.32	0.64	1.05	1.2	1	52.9	5	0.00	1.00	0.1	53		0.723	0.517	2.00		
1002	53.5	SW	50		4808	4069	1.32	0.63	1.05	1.2	1	52.7	5	0.00	1.00	0.1	53		0.718	0.514	2.00		
1001.5	54	SW	50		4837	4098	1.32	0.63	1.05	1.2	1	52.5	5	0.00	1.00	0.1	53		0.713	0.512	2.00		
1001	54.5	SW	50		4866	4127	1.32	0.63	1.05	1.2	1	52.3	5	0.00	1.00	0.1	52		0.708	0.509	2.00		
1000.5	55	SW	50		4895	4156	1.32	0.63	1.05	1.2	1	52.1	5	0.00	1.00	0.1	52		0.703	0.507	2.00		
1000	55.5	ML	48		4924	4185	1.32	0.62	1.05	1.2	1	49.8	35	5.00	1.20	15.0	65		0.699	0.505	2.00		
999.5	56	ML	48		4953	4214	1.32	0.62	1.05	1.2	1	49.6	35	5.00	1.20	14.9	65		0.694	0.503	2.00		
999	56.5	ML	48		4982	4243	1.32	0.62	1.05	1.2	1	49.4	35	5.00	1.20	14.9	64		0.689	0.500	2.00		
998.5	57	ML	48		5011	4272	1.32	0.62	1.05	1.2	1	49.2	35	5.00	1.20	14.8	64		0.685	0.498	2.00		
998	57.5	SP	50		5040	4301	1.32	0.61	1.05	1.2	1	51.1	5	0.00	1.00	0.1	51		0.680	0.496	2.00		
997.5	58	SP	50		5069	4330	1.32	0.61	1.05	1.2	1	50.9	5	0.00	1.00	0.1	51		0.676	0.493	2.00		
997	58.5	SP	50		5098	4359	1.32	0.61	1.05	1.2	1	50.7	5	0.00	1.00	0.1	51		0.672	0.491	2.00		
996.5	59	SP	50		5127	4388	1.32	0.61	1.05	1.2	1	50.5	5	0.00	1.00	0.1	51		0.668	0.489	2.00		
996	59.5	SP	50		5156	4417	1.32	0.60	1.05	1.2	1	50.3	5	0.00	1.00	0.1	50		0.663	0.487	2.00		
995.5	60	SP	50		5185	4446	1.32	0.60	1.05	1.2	1	50.1	5	0.00	1.00	0.1	50		0.659	0.485	2.00		
995	60.5	SP	50		5214	4475	1.32	0.60	1.05	1.2	1	49.9	5	0.00	1.00	0.1	50		0.655	0.483	2.00		
994.5	61	SP	50		5243	4504	1.32	0.60	1.05	1.2	1	49.7	5	0.00	1.00	0.1	50		0.651	0.481	2.00		
						228								0.00	1.00							0.000	
						228																0.000	
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																						0.000	0.000
																							0.074

SPT Liquefaction Spreadsheet

JOB NAME	Prpoosed Temecula Hospital	Boring	GDI-7		
DATE	8/12/2010	*y*	120	pcf	
BY	CJZ	GW level	28	ft	
CHECKED BY		HHGL	13.4	ft	
DATE		GS Elevation	1054		
		LFFE	1057.4		

Magnitue	a max
6.84	0.88

MSF 1.27

Total Settlement 0.00 INCHES

Elevation (MSL)	Depth (feet)	Soil Type	Nfield	Boulanger and Idriss (2006)	σo' (psf) current	σo' (psf) HHGWL	C_E	C_N	C_B	C_S	C_R	$(N_1)_{60}$	Fines Correction			ΔN	$(N_1)_{60}$	CRR 1998 eq.	Rd	CSR	FOS	SETTLEMENT (%)	SETTLEMENT (inches)
					psf	psf	energy	stress	5" diam	w/out liner	rod	interim Corr.	%fines	Alpha	Beta			<N=30					
1053	1	SP-SM	27		120	528	1.32	1.75	1.05	1.2	0.75		10	0.87	1.02				1.000	**0.103**	2.00		
1052.5	1.5	SP-SM	27		180	588	1.32	1.71	1.05	1.2	0.75		10	0.87	1.02				0.998	**0.139**	2.00		
1052	2	SP-SM	27		240	648	1.32	1.68	1.05	1.2	0.75		10	0.87	1.02				0.997	**0.168**	2.00		
1051.5	2.5	SP-SM	27		300	708	1.32	1.64	1.05	1.2	0.75		10	0.87	1.02				0.996	**0.192**	2.00		
1051	3	SP-SM	27		360	768	1.32	1.61	1.05	1.2	0.75		10	0.87	1.02				0.995	**0.212**	2.00		
1050.5	3.5	SP-SM	27		420	828	1.32	1.57	1.05	1.2	0.75		10	0.87	1.02				0.994	**0.229**	2.00		
1050	4	SP-SM	27		480	888	1.32	1.54	1.05	1.2	0.75		10	0.87	1.02				0.993	**0.244**	2.00		
1049.5	4.5	SP-SM	27		540	948	1.32	1.51	1.05	1.2	0.75		10	0.87	1.02				0.991	**0.256**	2.00		
1049	5	SP-SM	27		600	1008	1.32	1.48	1.05	1.2	0.75		10	0.87	1.02				0.990	**0.268**	2.00		
1048.5	5.5	SP-SM	18		660	1068	1.32	1.46	1.05	1.2	0.75		10	0.87	1.02				0.989	**0.278**	2.00		
1048	6	SP-SM	18		720	1128	1.32	1.43	1.05	1.2	0.75		10	0.87	1.02				0.988	**0.286**	2.00		
1047.5	6.5	SP-SM	18		780	1188	1.32	1.40	1.05	1.2	0.75		10	0.87	1.02				0.987	**0.294**	2.00		
1047	7	SP-SM	18		840	1248	1.32	1.38	1.05	1.2	0.75		10	0.87	1.02				0.986	**0.301**	2.00		
1046.5	7.5	SP-SM	18		900	1308	1.32	1.35	1.05	1.2	0.75		10	0.87	1.02				0.985	**0.308**	2.00		
1046	8	SP-SM	20		960	1368	1.32	1.33	1.05	1.2	0.75		10	0.87	1.02				0.983	**0.313**	2.00		
1045.5	8.5	SP-SM	20		1020	1428	1.32	1.31	1.05	1.2	0.75		10	0.87	1.02				0.982	**0.319**	2.00		
1045	9	SP-SM	20		1080	1488	1.32	1.29	1.05	1.2	0.75		10	0.87	1.02				0.981	**0.323**	2.00		
1044.5	9.5	SP-SM	20		1140	1548	1.32	1.27	1.05	1.2	0.75		10	0.87	1.02				0.980	**0.328**	2.00		
1044	10	SP-SM	20		1200	1608	1.32	1.24	1.05	1.2	0.75		10	0.87	1.02				0.979	**0.332**	2.00		
1043.5	10.5	SM	16		1260	1668	1.32	1.23	1.05	1.2	0.75		36	5.00	1.20				0.978	**0.335**	2.00		
1043	11	SM	16		1320	1728	1.32	1.21	1.05	1.2	0.75		36	5.00	1.20				0.977	**0.339**	2.00		
1042.5	11.5	SM	16		1380	1788	1.32	1.19	1.05	1.2	0.75		36	5.00	1.20				0.976	**0.342**	2.00		
1042	12	SM	16		1440	1848	1.32	1.17	1.05	1.2	0.75		36	5.00	1.20				0.975	**0.345**	2.00		
1041.5	12.5	SM	16		1500	1908	1.32	1.15	1.05	1.2	0.75		36	5.00	1.20				0.974	**0.348**	2.00		
1041	13	SM	31		1560	1968	1.32	1.14	1.05	1.2	0.85		21	3.78	1.09				0.973	**0.350**	2.00		
1040.5	13.5	SM	31		1620	2022	1.32	1.12	1.05	1.2	0.85	49.1	21	3.78	1.09	8.0	**57**		0.972	**0.354**	2.00		
1040	14	SM	31		1680	2051	1.32	1.10	1.05	1.2	0.85	48.4	21	3.78	1.09	7.9	**56**		0.971	**0.361**	2.00		
1039.5	14.5	SM	31		1740	2080	1.32	1.09	1.05	1.2	0.85	47.7	21	3.78	1.09	7.9	**56**		0.970	**0.368**	2.00		
1039	15	ML	16	YES	1800	2109	1.32	1.07	1.05	1.2	0.85	24.3	35	5.00	1.20	9.9	**34**		0.969	**0.375**	2.00		
1038.5	15.5	ML	16	YES	1860	2138	1.32	1.06	1.05	1.2	0.85	23.9	35	5.00	1.20	9.8	**34**		0.967	**0.382**	2.00		
1038	16	ML	16	YES	1920	2167	1.32	1.04	1.05	1.2	0.85	23.6	35	5.00	1.20	9.7	**33**		0.966	**0.389**	2.00		
1037.5	16.5	ML	16	YES	1980	2196	1.32	1.03	1.05	1.2	0.85	23.3	35	5.00	1.20	9.7	**33**		0.965	**0.395**	2.00		
1037	17	ML	16	YES	2040	2225	1.32	1.02	1.05	1.2	0.85	23.0	35	5.00	1.20	9.6	**33**		0.964	**0.401**	2.00		
1036.5	17.5	SM	19		2100	2254	1.32	1.00	1.05	1.2	0.85	27.0	37	5.00	1.20	10.4	**37**		0.963	**0.407**	2.00		
1036	18	SM	19		2160	2283	1.32	0.99	1.05	1.2	0.85	26.6	37	5.00	1.20	10.3	**37**		0.962	**0.413**	2.00		
1035.5	18.5	SM	19		2220	2312	1.32	0.98	1.05	1.2	0.85	26.3	37	5.00	1.20	10.3	**37**		0.961	**0.419**	2.00		
1035	19	SM	19		2280	2341	1.32	0.97	1.05	1.2	0.85	25.9	37	5.00	1.20	10.2	**36**		0.959	**0.424**	2.00		
1034.5	19.5	SM	19		2340	2370	1.32	0.95	1.05	1.2	0.85	25.6	37	5.00	1.20	10.1	**36**		0.958	**0.430**	2.00		
1034	20	SP	36		2400	2399	1.32	0.94	1.05	1.2	0.95	53.6	5	0.00	1.00	0.1	**54**		0.957	**0.435**	2.00		
1033.5	20.5	SP	36		2460	2428	1.32	0.93	1.05	1.2	0.95	53.0	5	0.00	1.00	0.1	**53**		0.956	**0.440**	2.00		
1033	21	SP	36		2520	2457	1.32	0.92	1.05	1.2	0.95	52.3	5	0.00	1.00	0.1	**52**		0.954	**0.444**	2.00		
1032.5	21.5	SP	36		2580	2486	1.32	0.91	1.05	1.2	0.95	51.7	5	0.00	1.00	0.1	**52**		0.953	**0.449**	2.00		
1032	22	SP	36		2640	2515	1.32	0.90	1.05	1.2	0.95	51.1	5	0.00	1.00	0.1	**51**		0.951	**0.453**	2.00		
1031.5	22.5	SW	57		2700	2544	1.32	0.89	1.05	1.2	0.95	80.0	5	0.00	1.00	0.1	**80**		0.950	**0.458**	2.00		
1031	23	SW	57		2760	2573	1.32	0.88	1.05	1.2	0.95	79.1	5	0.00	1.00	0.1	**79**		0.948	**0.462**	2.00		
1030.5	23.5	SW	57		2820	2602	1.32	0.87	1.05	1.2	0.95	78.2	5	0.00	1.00	0.1	**78**		0.947	**0.466**	2.00		
1030	24	SW	57		2880	2631	1.32	0.86	1.05	1.2	0.95	77.4	5	0.00	1.00	0.1	**77**		0.945	**0.470**	2.00		
1029.5	24.5	SW	57		2940	2660	1.32	0.85	1.05	1.2	0.95	76.5	5	0.00	1.00	0.1	**77**		0.944	**0.474**	2.00		
1029	25	SP-SM	57		3000	2689	1.32	0.84	1.05	1.2	0.95	75.7	5	0.00	1.00	0.1	**76**		0.942	**0.477**	2.00		
1028.5	25.5	SP-SM	57		3060	2718	1.32	0.83	1.05	1.2	0.95	74.9	5	0.00	1.00	0.1	**75**		0.940	**0.481**	2.00		
1028	26	SP-SM	57		3120	2747	1.32	0.82	1.05	1.2	0.95	74.1	5	0.00	1.00	0.1	**74**		0.938	**0.484**	2.00		
1027.5	26.5	SP-SM	57		3180	2776	1.32	0.81	1.05	1.2	0.95	73.3	5	0.00	1.00	0.1	**73**		0.936	**0.487**	2.00		
1027	27	SP-SM	57		3240	2805	1.32	0.81	1.05	1.2	0.95	72.5	5	0.00	1.00	0.1	**73**		0.934	**0.490**	2.00		
1026.5	27.5	SW-SM	27		3300	2834	1.32	0.80	1.05	1.2	0.95	34.0	6	0.03	1.00	0.2	**34**		0.932	**0.493**	2.00		
1026	28	SW-SM	27		3360	2863	1.32	0.79	1.05	1.2	0.95	33.7	6	0.03	1.00	0.2	**34**		0.930	**0.496**	2.00		
1025.5	28.5	SW-SM	27		3389	2892	1.32	0.79	1.05	1.2	0.95	33.5	6	0.03	1.00	0.2	**34**		0.928	**0.498**	2.00		
1025	29	SW-SM	27		3418	2921	1.32	0.78	1.05	1.2	0.95	33.3	6	0.03	1.00	0.2	**34**		0.925	**0.501**	2.00		
1024.5	29.5	SW-SM	27		3447	2950	1.32	0.78	1.05	1.2	0.95	33.2	6	0.03	1.00	0.2	**33**		0.923	**0.503**	2.00		

1024	30	ML	45		3476	2979	1.32	0.77	1.05	1.2	0.95	55.0	35	5.00	1.20	16.0	71	0.921	**0.505**	2.00		
1023.5	30.5	SW-SM	45		3505	3008	1.32	0.77	1.05	1.2	0.95	54.8	6	0.03	1.00	0.3	55	0.918	**0.507**	2.00		
1023	31	SW-SM	45		3534	3037	1.32	0.77	1.05	1.2	0.95	54.5	6	0.03	1.00	0.3	55	0.915	**0.509**	2.00		
1022.5	31.5	SW-SM	45		3563	3066	1.32	0.76	1.05	1.2	0.95	54.2	6	0.03	1.00	0.3	55	0.913	**0.511**	2.00		
1022	32	SW-SM	45		3592	3095	1.32	0.76	1.05	1.2	0.95	54.0	6	0.03	1.00	0.3	54	0.910	**0.513**	2.00		
1021.5	32.5	ML	59		3621	3124	1.32	0.76	1.05	1.2	0.95	70.4	35	5.00	1.20	19.1	90	0.907	**0.514**	2.00		
1021	33	ML	59		3650	3153	1.32	0.75	1.05	1.2	1	73.8	35	5.00	1.20	19.8	94	0.904	**0.515**	2.00		
1020.5	33.5	ML	59		3679	3182	1.32	0.75	1.05	1.2	1	73.5	35	5.00	1.20	19.7	93	0.901	**0.517**	2.00		
1020	34	ML	59		3708	3211	1.32	0.75	1.05	1.2	1	73.1	35	5.00	1.20	19.6	93	0.897	**0.518**	2.00		
1019.5	34.5	ML	59		3737	3240	1.32	0.74	1.05	1.2	1	72.8	35	5.00	1.20	19.6	92	0.894	**0.519**	2.00		
1019	35	SP	50		3766	3269	1.32	0.74	1.05	1.2	1	61.4	5	0.00	1.00	0.1	61	0.891	**0.520**	2.00		
1018.5	35.5	SP	50		3795	3298	1.32	0.73	1.05	1.2	1	61.1	5	0.00	1.00	0.1	61	0.887	**0.520**	2.00		
1018	36	SP	50		3824	3327	1.32	0.73	1.05	1.2	1	60.8	5	0.00	1.00	0.1	61	0.883	**0.521**	2.00		
1017.5	36.5	SP	50		3853	3356	1.32	0.73	1.05	1.2	1	60.6	5	0.00	1.00	0.1	61	0.880	**0.521**	2.00		
1017	37	SP	50		3882	3385	1.32	0.72	1.05	1.2	1	60.3	5	0.00	1.00	0.1	60	0.876	**0.522**	2.00		
1016.5	37.5	SP	50		3911	3414	1.32	0.72	1.05	1.2	1	60.0	5	0.00	1.00	0.1	60	0.872	**0.522**	2.00		
1016	38	SP	50		3940	3443	1.32	0.72	1.05	1.2	1	59.7	5	0.00	1.00	0.1	60	0.868	**0.522**	2.00		
1015.5	38.5	SP	50		3969	3472	1.32	0.72	1.05	1.2	1	59.5	5	0.00	1.00	0.1	60	0.864	**0.522**	2.00		
1015	39	SP	50		3998	3501	1.32	0.71	1.05	1.2	1	59.2	5	0.00	1.00	0.1	59	0.860	**0.522**	2.00		
1014.5	39.5	SP	50		4027	3530	1.32	0.71	1.05	1.2	1	59.0	5	0.00	1.00	0.1	59	0.855	**0.522**	2.00		
1014	40	SP	50		4056	3559	1.32	0.71	1.05	1.2	1	58.7	5	0.00	1.00	0.1	59	0.851	**0.521**	2.00		
1013.5	40.5	SP	50		4085	3588	1.32	0.70	1.05	1.2	1	58.4	5	0.00	1.00	0.1	59	0.847	**0.521**	2.00		
1013	41	SP	50		4114	3617	1.32	0.70	1.05	1.2	1	58.2	5	0.00	1.00	0.1	58	0.842	**0.520**	2.00		
1012.5	41.5	SP	50		4143	3646	1.32	0.70	1.05	1.2	1	57.9	5	0.00	1.00	0.1	58	0.837	**0.519**	2.00		
1012	42	SP	50		4172	3675	1.32	0.69	1.05	1.2	1	57.7	5	0.00	1.00	0.1	58	0.833	**0.519**	2.00		
1011.5	42.5	SP	50		4201	3704	1.32	0.69	1.05	1.2	1	57.4	5	0.00	1.00	0.1	58	0.828	**0.518**	2.00		
1011	43	SP	50		4230	3733	1.32	0.69	1.05	1.2	1	57.2	5	0.00	1.00	0.1	57	0.823	**0.517**	2.00		
1010.5	43.5	SP	50		4259	3762	1.32	0.68	1.05	1.2	1	56.9	5	0.00	1.00	0.1	57	0.818	**0.516**	2.00		
1010	44	SP	50		4288	3791	1.32	0.68	1.05	1.2	1	56.7	5	0.00	1.00	0.1	57	0.814	**0.514**	2.00		
1009.5	44.5	SP	50		4317	3820	1.32	0.68	1.05	1.2	1	56.5	5	0.00	1.00	0.1	57	0.809	**0.513**	2.00		
1009	45	SP	50		4346	3849	1.32	0.68	1.05	1.2	1	56.2	5	0.00	1.00	0.1	56	0.804	**0.512**	2.00		
1008.5	45.5	SP	50		4375	3878	1.32	0.67	1.05	1.2	1	56.0	5	0.00	1.00	0.1	56	0.799	**0.511**	2.00		
1008	46	SP	50		4404	3907	1.32	0.67	1.05	1.2	1	55.8	5	0.00	1.00	0.1	56	0.794	**0.509**	2.00		
1007.5	46.5	SP	50		4433	3936	1.32	0.67	1.05	1.2	1	55.5	5	0.00	1.00	0.1	56	0.788	**0.508**	2.00		
1007	47	SP	50		4462	3965	1.32	0.66	1.05	1.2	1	55.3	5	0.00	1.00	0.1	55	0.783	**0.506**	2.00		
1006.5	47.5	SP	50		4491	3994	1.32	0.66	1.05	1.2	1	55.1	5	0.00	1.00	0.1	55	0.778	**0.504**	2.00		
1006	48	SP	50		4520	4023	1.32	0.66	1.05	1.2	1	54.8	5	0.00	1.00	0.1	55	0.773	**0.503**	2.00		
1005.5	48.5	SP	50		4549	4052	1.32	0.66	1.05	1.2	1	54.6	5	0.00	1.00	0.1	55	0.768	**0.501**	2.00		
1005	49	SP	50		4578	4081	1.32	0.65	1.05	1.2	1	54.4	5	0.00	1.00	0.1	54	0.763	**0.499**	2.00		
1004.5	49.5	SP	50		4607	4110	1.32	0.65	1.05	1.2	1	54.2	5	0.00	1.00	0.1	54	0.758	**0.497**	2.00		
1004	50	SP	50		4636	4139	1.32	0.65	1.05	1.2	1	54.0	5	0.00	1.00	0.1	54	0.753	**0.495**	2.00		
1003.5	50.5	SP	50		4665	4168	1.32	0.65	1.05	1.2	1	53.7	5	0.00	1.00	0.1	54	0.748	**0.494**	2.00		
1003	51	SP	50		4694	4197	1.32	0.64	1.05	1.2	1	53.5	5	0.00	1.00	0.1	54	0.743	**0.492**	2.00		
1002.5	51.5	SP	50		4723	4226	1.32	0.64	1.05	1.2	1	53.3	5	0.00	1.00	0.1	53	0.738	**0.490**	2.00		
1002	52	SP	50		4752	4255	1.32	0.64	1.05	1.2	1	53.1	5	0.00	1.00	0.1	53	0.733	**0.488**	2.00		
1001.5	52.5	SP	50		4781	4284	1.32	0.64	1.05	1.2	1	52.9	5	0.00	1.00	0.1	53	0.728	**0.486**	2.00		
1001	53	SP	50		4810	4313	1.32	0.63	1.05	1.2	1	52.7	5	0.00	1.00	0.1	53	0.723	**0.484**	2.00		
1000.5	53.5	SP	50		4839	4342	1.32	0.63	1.05	1.2	1	52.5	5	0.00	1.00	0.1	53	0.718	**0.482**	2.00		
1000	54	SP	50		4868	4371	1.32	0.63	1.05	1.2	1	52.3	5	0.00	1.00	0.1	52	0.713	**0.480**	2.00		
999.5	54.5	SP	50		4897	4400	1.32	0.63	1.05	1.2	1	52.1	5	0.00	1.00	0.1	52	0.708	**0.478**	2.00		
999	55	SP	50		4926	4429	1.32	0.62	1.05	1.2	1	51.9	5	0.00	1.00	0.1	52	0.703	**0.476**	2.00		
998.5	55.5	SP	50		4955	4458	1.32	0.62	1.05	1.2	1	51.7	35	5.00	1.20	15.3	67	0.699	**0.474**	2.00		
998	56	SP	50		4984	4487	1.32	0.62	1.05	1.2	1	51.5	35	5.00	1.20	15.3	67	0.694	**0.472**	2.00		
997.5	56.5	SP	50		5013	4516	1.32	0.62	1.05	1.2	1	51.3	35	5.00	1.20	15.3	67	0.689	**0.470**	2.00		
997	57	SP	50		5042	4545	1.32	0.61	1.05	1.2	1	51.1	35	5.00	1.20	15.2	66	0.685	**0.468**	2.00		
996.5	57.5	SP	50		5071	4574	1.32	0.61	1.05	1.2	1	50.9	5	0.00	1.00	0.1	51	0.680	**0.466**	2.00		
996	58	SP	50		5100	4603	1.32	0.61	1.05	1.2	1	50.7	5	0.00	1.00	0.1	51	0.676	**0.464**	2.00		
995.5	58.5	SP	50		5129	4632	1.32	0.61	1.05	1.2	1	50.5	5	0.00	1.00	0.1	51	0.672	**0.462**	2.00		
995	59	SP	50		5158	4661	1.32	0.60	1.05	1.2	1	50.3	5	0.00	1.00	0.1	50	0.668	**0.460**	2.00		
994.5	59.5	SP	50		5187	4690	1.32	0.60	1.05	1.2	1	50.1	5	0.00	1.00	0.1	50	0.663	**0.459**	2.00		
994	60	SP	50		5216	4719	1.32	0.60	1.05	1.2	1	49.9	5	0.00	1.00	0.1	50	0.659	**0.457**	2.00		
993.5	60.5	SP	50		5245	4748	1.32	0.60	1.05	1.2	1	49.7	5	0.00	1.00	0.1	50	0.655	**0.455**	2.00		
993	61	SP	50		5274	4777	1.32	0.60	1.05	1.2	1	49.5	5	0.00	1.00	0.1	50	0.651	**0.453**	2.00		
						408								0.00	1.00						0.000	
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SPT Liquefaction Spreadsheet

JOB NAME	Prpoosed Temecula Hospital	Boring	GDI-8		
DATE	8/11/2010	*y*	120	pcf	
BY	CJZ	GW level	23.5	ft	
CHECKED BY		HHGL	15.9	ft	
DATE		GS Elevation	1051.5		
		LFFE	1057.4		

Magnitue	a max
6.84	0.88

MSF 1.27

Total Settlement 1.18 INCHES

Elevation (MSL)	Depth (feet)	Soil Type	Nfield	Boulanger and Idriss (2006)	σo' (psf) current	σo' (psf) HHGWL	C_E	C_N	C_B	C_S	C_R	$(N_1)_{60}$	Fines Correction			ΔN	$(N_1)_{60}$	CRR	Rd	CSR	FOS	SETTLEMENT (%)	SETTLEMENT (inches)
					psf	psf	energy	stress	5" diam	w/out liner	rod	interim Corr.	%fines	Alpha	Beta			1998 eq. <N=30					
1050.5	1	SP-SM	15		120	828	1.32	1.75	1.05	1.2	0.75		10	0.87	1.02				1.000	**0.066**	2.00		
1050	1.5	SP-SM	15		180	888	1.32	1.71	1.05	1.2	0.75		10	0.87	1.02				0.998	**0.092**	2.00		
1049.5	2	SP-SM	15		240	948	1.32	1.68	1.05	1.2	0.75		10	0.87	1.02				0.997	**0.115**	2.00		
1049	2.5	SP-SM	15		300	1008	1.32	1.64	1.05	1.2	0.75		10	0.87	1.02				0.996	**0.135**	2.00		
1048.5	3	SP-SM	15		360	1068	1.32	1.61	1.05	1.2	0.75		10	0.87	1.02				0.995	**0.152**	2.00		
1048	3.5	SP-SM	15		420	1128	1.32	1.57	1.05	1.2	0.75		10	0.87	1.02				0.994	**0.168**	2.00		
1047.5	4	SP-SM	15		480	1188	1.32	1.54	1.05	1.2	0.75		10	0.87	1.02				0.993	**0.182**	2.00		
1047	4.5	SP-SM	15		540	1248	1.32	1.51	1.05	1.2	0.75		10	0.87	1.02				0.991	**0.195**	2.00		
1046.5	5	SP-SM	15		600	1308	1.32	1.48	1.05	1.2	0.75		10	0.87	1.02				0.990	**0.206**	2.00		
1046	5.5	SP-SM	15		660	1368	1.32	1.46	1.05	1.2	0.75		10	0.87	1.02				0.989	**0.217**	2.00		
1045.5	6	SP-SM	15		720	1428	1.32	1.43	1.05	1.2	0.75		10	0.87	1.02				0.988	**0.226**	2.00		
1045	6.5	SP-SM	15		780	1488	1.32	1.40	1.05	1.2	0.75		3	0.00	1.00				0.987	**0.235**	2.00		
1044.5	7	SP	15		840	1548	1.32	1.38	1.05	1.2	0.75		3	0.00	1.00				0.986	**0.243**	2.00		
1044	7.5	SP	18		900	1608	1.32	1.35	1.05	1.2	0.75		3	0.00	1.00				0.985	**0.250**	2.00		
1043.5	8	SP	18		960	1668	1.32	1.33	1.05	1.2	0.75		3	0.00	1.00				0.983	**0.257**	2.00		
1043	8.5	SP	18		1020	1728	1.32	1.31	1.05	1.2	0.75		3	0.00	1.00				0.982	**0.263**	2.00		
1042.5	9	SP	18		1080	1788	1.32	1.29	1.05	1.2	0.75		3	0.00	1.00				0.981	**0.269**	2.00		
1042	9.5	SP	18		1140	1848	1.32	1.27	1.05	1.2	0.75		3	0.00	1.00				0.980	**0.275**	2.00		
1041.5	10	SP	18		1200	1908	1.32	1.24	1.05	1.2	0.75		3	0.00	1.00				0.979	**0.280**	2.00		
1041	10.5	ML	16		1260	1968	1.32	1.23	1.05	1.2	0.75		35	5.00	1.20				0.978	**0.284**	2.00		
1040.5	11	SM	16		1320	2028	1.32	1.21	1.05	1.2	0.75		23	4.08	1.10				0.977	**0.289**	2.00		
1040	11.5	SM	16		1380	2088	1.32	1.19	1.05	1.2	0.75		23	4.06	1.10				0.976	**0.293**	2.00		
1039.5	12	SM	16		1440	2148	1.32	1.17	1.05	1.2	0.75		23	4.06	1.10				0.975	**0.297**	2.00		
1039	12.5	SM	16		1500	2208	1.32	1.15	1.05	1.2	0.75		23	4.06	1.10				0.974	**0.300**	2.00		
1038.5	13	SM	16		1560	2268	1.32	1.14	1.05	1.2	0.85		23	4.06	1.10				0.973	**0.304**	2.00		
1038	13.5	SM	16		1620	2328	1.32	1.12	1.05	1.2	0.85		23	4.06	1.10				0.972	**0.307**	2.00		
1037.5	14	SM	16		1680	2388	1.32	1.10	1.05	1.2	0.85		23	4.06	1.10				0.971	**0.310**	2.00		
1037	14.5	SM	16		1740	2448	1.32	1.09	1.05	1.2	0.85		23	4.06	1.10				0.970	**0.313**	2.00		
1036.5	15	SM	16		1800	2508	1.32	1.07	1.05	1.2	0.85		23	4.06	1.10				0.969	**0.316**	2.00		
1036	15.5	SM	16		1860	2568	1.32	1.06	1.05	1.2	0.85		23	4.06	1.10				0.967	**0.318**	2.00		
1035.5	16	SM	16		1920	2622	1.32	1.04	1.05	1.2	0.85	23.6	23	4.06	1.10	6.4	**30**		0.966	**0.321**	2.00		
1035	16.5	SM	16		1980	2651	1.32	1.03	1.05	1.2	0.85	23.3	23	4.06	1.10	6.4	**30**	0.448	0.965	**0.327**	1.73	0.000	0.000
1034.5	17	ML	16		2040	2680	1.32	1.02	1.05	1.2	0.85	23.0	35	5.00	1.20	9.6	**33**		0.964	**0.333**	2.00		
1034	17.5	ML	16		2100	2709	1.32	1.00	1.05	1.2	0.85	22.7	35	5.00	1.20	9.5	**32**		0.963	**0.339**	2.00		
1033.5	18	ML	16		2160	2738	1.32	0.99	1.05	1.2	0.85	22.4	35	5.00	1.20	9.5	**32**		0.962	**0.345**	2.00		
1033	18.5	ML	16		2220	2767	1.32	0.98	1.05	1.2	0.85	22.1	35	5.00	1.20	9.4	**32**		0.961	**0.350**	2.00		
1032.5	19	ML	16		2280	2796	1.32	0.97	1.05	1.2	0.85	21.8	35	5.00	1.20	9.4	**31**		0.959	**0.355**	2.00		
1032	19.5	SP	30		2340	2825	1.32	0.95	1.05	1.2	0.85	40.5	5	0.00	1.00	0.1	**41**		0.958	**0.360**	2.00		
1031.5	20	SP	30		2400	2854	1.32	0.94	1.05	1.2	0.95	44.7	5	0.00	1.00	0.1	**45**		0.957	**0.365**	2.00		
1031	20.5	SP	30		2460	2883	1.32	0.93	1.05	1.2	0.95	44.1	5	0.00	1.00	0.1	**44**		0.956	**0.370**	2.00		
1030.5	21	SP	30		2520	2912	1.32	0.92	1.05	1.2	0.95	43.6	5	0.00	1.00	0.1	**44**		0.954	**0.375**	2.00		
1030	21.5	SP	30		2580	2941	1.32	0.91	1.05	1.2	0.95	43.1	5	0.00	1.00	0.1	**43**		0.953	**0.380**	2.00		
1029.5	22	SP	30		2640	2970	1.32	0.90	1.05	1.2	0.95	42.6	5	0.00	1.00	0.1	**43**		0.951	**0.384**	2.00		
1029	22.5	SP	30		2700	2999	1.32	0.89	1.05	1.2	0.95	42.1	5	0.00	1.00	0.1	**42**		0.950	**0.388**	2.00		
1028.5	23	SP	30		2760	3028	1.32	0.88	1.05	1.2	0.95	41.6	5	0.00	1.00	0.1	**42**		0.948	**0.393**	2.00		
1028	23.5	SP	30		2820	3057	1.32	0.87	1.05	1.2	0.95	41.2	5	0.00	1.00	0.1	**41**		0.947	**0.397**	2.00		
1027.5	24	ML	11		2849	3086	1.32	0.86	1.05	1.2	0.95	15.0	35	5.00	1.20	8.0	**23**	0.257	0.945	**0.401**	0.81	0.014	0.084
1027	24.5	ML	11		2878	3115	1.32	0.86	1.05	1.2	0.95	14.9	35	5.00	1.20	8.0	**23**	0.256	0.944	**0.404**	0.80	0.014	0.084
1026.5	25	ML	11		2907	3144	1.32	0.85	1.05	1.2	0.95	14.9	35	5.00	1.20	8.0	**23**	0.254	0.942	**0.408**	0.79	0.014	0.084
1026	25.5	ML	11		2936	3173	1.32	0.85	1.05	1.2	0.95	14.8	35	5.00	1.20	8.0	**23**	0.253	0.940	**0.412**	0.78	0.014	0.084
1025.5	26	ML	11		2965	3202	1.32	0.85	1.05	1.2	0.95	14.7	35	5.00	1.20	7.9	**23**	0.251	0.938	**0.415**	0.77	0.014	0.084
1025	26.5	ML	11		2994	3231	1.32	0.84	1.05	1.2	0.95	14.6	35	5.00	1.20	7.9	**23**	0.250	0.936	**0.418**	0.76	0.014	0.084
1024.5	27	ML	11		3023	3260	1.32	0.84	1.05	1.2	0.95	14.5	35	5.00	1.20	7.9	**22**	0.249	0.934	**0.422**	0.75	0.014	0.084
1024	27.5	ML	11		3052	3289	1.32	0.83	1.05	1.2	0.95	14.5	35	5.00	1.20	7.9	**22**	0.247	0.932	**0.425**	0.74	0.014	0.084
1023.5	28	ML	11		3081	3318	1.32	0.83	1.05	1.2	0.95	14.4	35	5.00	1.20	7.9	**22**	0.246	0.930	**0.428**	0.73	0.014	0.084
1023	28.5	ML	11		3110	3347	1.32	0.82	1.05	1.2	0.95	14.3	35	5.00	1.20	7.9	**22**	0.245	0.928	**0.430**	0.72	0.014	0.084
1022.5	29	ML	11		3139	3376	1.32	0.82	1.05	1.2	0.95	14.2	35	5.00	1.20	7.8	**22**	0.243	0.925	**0.433**	0.71	0.014	0.084
1022	29.5	ML	11		3168	3405	1.32	0.82	1.05	1.2	0.95	14.2	35	5.00	1.20	7.8	**22**	0.242	0.923	**0.436**	0.70	0.014	0.084

1021.5	30	ML	11		3197	3434	1.32	0.81	1.05	1.2	0.95	14.1	35	5.00	1.20	7.8	22	0.241	0.921	0.438	0.70	0.014	0.084
1021	30.5	ML	11		3226	3463	1.32	0.81	1.05	1.2	0.95	14.0	35	5.00	1.20	7.8	22	0.240	0.918	0.441	0.69	0.014	0.084
1020.5	31	SP	44		3255	3492	1.32	0.80	1.05	1.2	0.95	55.9	35	5.00	1.20	16.2	72		0.915	0.443	2.00		
1020	31.5	SP	44		3284	3521	1.32	0.80	1.05	1.2	0.95	55.6	5	0.00	1.00	0.1	56		0.913	0.445	2.00		
1019.5	32	SP	44		3313	3550	1.32	0.80	1.05	1.2	0.95	55.3	5	0.00	1.00	0.1	55		0.910	0.447	2.00		
1019	32.5	SP	44		3342	3579	1.32	0.79	1.05	1.2	0.95	55.0	5	0.00	1.00	0.1	55		0.907	0.449	2.00		
1018.5	33	SP	44		3371	3608	1.32	0.79	1.05	1.2	1	57.6	5	0.00	1.00	0.1	58		0.904	0.450	2.00		
1018	33.5	SP	44		3400	3637	1.32	0.78	1.05	1.2	1	57.4	5	0.00	1.00	0.1	57		0.901	0.452	2.00		
1017.5	34	SP	44		3429	3666	1.32	0.78	1.05	1.2	1	57.1	5	0.00	1.00	0.1	57		0.897	0.453	2.00		
1017	34.5	CL	28	YES	3458	3695	1.32	0.78	1.05	1.2	1	36.1	32	4.83	1.17	11.0	47		0.894	0.455	2.00		
1016.5	35	CL	28	YES	3487	3724	1.32	0.77	1.05	1.2	1	36.0	32	4.83	1.17	11.0	47		0.891	0.456	2.00		
1016	35.5	CL	28	YES	3516	3753	1.32	0.77	1.05	1.2	1	35.8	32	4.83	1.17	11.0	47		0.887	0.457	2.00		
1015.5	36	CL	28	YES	3545	3782	1.32	0.77	1.05	1.2	1	35.6	32	4.83	1.17	10.9	47		0.883	0.458	2.00		
1015	36.5	SW	28		3574	3811	1.32	0.76	1.05	1.2	1	35.5	5	0.00	1.00	0.0	36		0.880	0.459	2.00		
1014.5	37	SW	28		3603	3840	1.32	0.76	1.05	1.2	1	35.3	5	0.00	1.00	0.0	35		0.876	0.460	2.00		
1014	37.5	SW	28		3632	3869	1.32	0.75	1.05	1.2	1	35.1	5	0.00	1.00	0.0	35		0.872	0.461	2.00		
1013.5	38	SW	28		3661	3898	1.32	0.75	1.05	1.2	1	35.0	5	0.00	1.00	0.0	35		0.868	0.461	2.00		
1013	38.5	SW	28		3690	3927	1.32	0.75	1.05	1.2	1	34.8	5	0.00	1.00	0.0	35		0.864	0.461	2.00		
1012.5	39	ML	28		3719	3956	1.32	0.74	1.05	1.2	1	34.6	35	5.00	1.20	11.9	47		0.860	0.462	2.00		
1012	39.5	ML	28		3748	3985	1.32	0.74	1.05	1.2	1	34.5	35	5.00	1.20	11.9	46		0.855	0.462	2.00		
1011.5	40	ML	28		3777	4014	1.32	0.74	1.05	1.2	1	34.3	35	5.00	1.20	11.9	46		0.851	0.462	2.00		
1011	40.5	ML	28		3806	4043	1.32	0.73	1.05	1.2	1	34.2	35	5.00	1.20	11.8	46		0.847	0.462	2.00		
1010.5	41	SW	48		3835	4072	1.32	0.73	1.05	1.2	1	58.3	5	0.00	1.00	0.1	58		0.842	0.462	2.00		
1010	41.5	SW	48		3864	4101	1.32	0.73	1.05	1.2	1	58.0	5	0.00	1.00	0.1	58		0.837	0.462	2.00		
1009.5	42	SW	48		3893	4130	1.32	0.72	1.05	1.2	1	57.8	5	0.00	1.00	0.1	58		0.833	0.461	2.00		
1009	42.5	SW	48		3922	4159	1.32	0.72	1.05	1.2	1	57.5	5	0.00	1.00	0.1	58		0.828	0.461	2.00		
1008.5	43	SW	48		3951	4188	1.32	0.72	1.05	1.2	1	57.3	5	0.00	1.00	0.1	57		0.823	0.461	2.00		
1008	43.5	SW	48		3980	4217	1.32	0.71	1.05	1.2	1	57.0	5	0.00	1.00	0.1	57		0.818	0.460	2.00		
1007.5	44	SW	48		4009	4246	1.32	0.71	1.05	1.2	1	56.8	5	0.00	1.00	0.1	57		0.814	0.459	2.00		
1007	44.5	SW	48		4038	4275	1.32	0.71	1.05	1.2	1	56.5	5	0.00	1.00	0.1	57		0.809	0.459	2.00		
1006.5	45	SW	48		4067	4304	1.32	0.70	1.05	1.2	1	56.3	5	0.00	1.00	0.1	56		0.804	0.458	2.00		
1006	45.5	SW	48		4096	4333	1.32	0.70	1.05	1.2	1	56.0	5	0.00	1.00	0.1	56		0.799	0.457	2.00		
1005.5	46	SW	48		4125	4362	1.32	0.70	1.05	1.2	1	55.8	5	0.00	1.00	0.1	56		0.794	0.456	2.00		
1005	46.5	SW	48		4154	4391	1.32	0.70	1.05	1.2	1	55.5	5	0.00	1.00	0.1	56		0.788	0.455	2.00		
1004.5	47	SW	48		4183	4420	1.32	0.69	1.05	1.2	1	55.3	5	0.00	1.00	0.1	55		0.783	0.454	2.00		
1004	47.5	SW	48		4212	4449	1.32	0.69	1.05	1.2	1	55.0	5	0.00	1.00	0.1	55		0.778	0.453	2.00		
1003.5	48	SW	48		4241	4478	1.32	0.69	1.05	1.2	1	54.8	5	0.00	1.00	0.1	55		0.773	0.452	2.00		
1003	48.5	SW	48		4270	4507	1.32	0.68	1.05	1.2	1	54.6	5	0.00	1.00	0.1	55		0.768	0.450	2.00		
1002.5	49	SW	48		4299	4536	1.32	0.68	1.05	1.2	1	54.3	5	0.00	1.00	0.1	54		0.763	0.449	2.00		
1002	49.5	SW	48		4328	4565	1.32	0.68	1.05	1.2	1	54.1	5	0.00	1.00	0.1	54		0.758	0.448	2.00		
1001.5	50	SW	48		4357	4594	1.32	0.68	1.05	1.2	1	53.9	5	0.00	1.00	0.1	54		0.753	0.446	2.00		
1001	50.5	SW	48		4386	4623	1.32	0.67	1.05	1.2	1	53.7	5	0.00	1.00	0.1	54		0.748	0.445	2.00		
1000.5	51	SW	48		4415	4652	1.32	0.67	1.05	1.2	1	53.4	5	0.00	1.00	0.1	54		0.743	0.444	2.00		
1000	51.5	SW	48		4444	4681	1.32	0.67	1.05	1.2	1	53.2	5	0.00	1.00	0.1	53		0.738	0.442	2.00		
999.5	52	SW	48		4473	4710	1.32	0.66	1.05	1.2	1	53.0	5	0.00	1.00	0.1	53		0.733	0.441	2.00		
999	52.5	SW	48		4502	4739	1.32	0.66	1.05	1.2	1	52.8	5	0.00	1.00	0.1	53		0.728	0.439	2.00		
998.5	53	SW	48		4531	4768	1.32	0.66	1.05	1.2	1	52.6	5	0.00	1.00	0.1	53		0.723	0.438	2.00		
998	53.5	SW	48		4560	4797	1.32	0.66	1.05	1.2	1	52.3	5	0.00	1.00	0.1	52		0.718	0.436	2.00		
997.5	54	SW	48		4589	4826	1.32	0.65	1.05	1.2	1	52.1	5	0.00	1.00	0.1	52		0.713	0.435	2.00		
997	54.5	SW	48		4618	4855	1.32	0.65	1.05	1.2	1	51.9	5	0.00	1.00	0.1	52		0.708	0.433	2.00		
996.5	55	SW	48		4647	4884	1.32	0.65	1.05	1.2	1	51.7	5	0.00	1.00	0.1	52		0.703	0.432	2.00		
996	55.5	SW	48		4676	4913	1.32	0.65	1.05	1.2	1	51.5	35	5.00	1.20	15.3	67		0.699	0.430	2.00		
995.5	56	SW	48		4705	4942	1.32	0.64	1.05	1.2	1	51.3	35	5.00	1.20	15.3	67		0.694	0.428	2.00		
995	56.5	SW	48		4734	4971	1.32	0.64	1.05	1.2	1	51.1	35	5.00	1.20	15.2	66		0.689	0.427	2.00		
994.5	57	SW	48		4763	5000	1.32	0.64	1.05	1.2	1	50.9	35	5.00	1.20	15.2	66		0.685	0.425	2.00		
994	57.5	SW	48		4792	5029	1.32	0.63	1.05	1.2	1	50.7	5	0.00	1.00	0.1	51		0.680	0.424	2.00		
993.5	58	SW	48		4821	5058	1.32	0.63	1.05	1.2	1	50.5	5	0.00	1.00	0.1	51		0.676	0.422	2.00		
993	58.5	SW	48		4850	5087	1.32	0.63	1.05	1.2	1	50.3	5	0.00	1.00	0.1	50		0.672	0.421	2.00		
992.5	59	SW	48		4879	5116	1.32	0.63	1.05	1.2	1	50.1	5	0.00	1.00	0.1	50		0.668	0.419	2.00		
992	59.5	SW	48		4908	5145	1.32	0.63	1.05	1.2	1	49.9	5	0.00	1.00	0.1	50		0.663	0.418	2.00		
991.5	60	SW	48		4937	5174	1.32	0.62	1.05	1.2	1	49.7	5	0.00	1.00	0.1	50		0.659	0.417	2.00		
991	60.5	SW	48		4966	5203	1.32	0.62	1.05	1.2	1	49.5	5	0.00	1.00	0.1	50		0.655	0.415	2.00		
990.5	61	SW	48		4995	5232	1.32	0.62	1.05	1.2	1	49.3	5	0.00	1.00	0.1	49		0.651	0.414	2.00		
						708								0.00	1.00							0.000	
						708																0.000	
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																						0.000	0.000
																							1.176

SPT Liquefaction Spreadsheet

JOB NAME	Prpoosed Temecula Hospital	Boring	GDI-9		
DATE	8/11/2010	*y*	120	pcf	
BY	CJZ	GW level	23	ft	
CHECKED BY		HHGL	17.9	ft	
DATE		GS Elevation	1049.5		
		LFFE	1057.4		
			Magnitue	a max	
			6.84	0.88	
		MSF	1.27		

Total Settlement 0.53 INCHES

Elevation (MSL)	Depth (feet)	Soil Type	Nfield	Boulanger and Idriss (2006)	σo' (psf) current	σo' (psf) HHGWL	C_E	C_N	C_B	C_S	C_R	$(N_1)_{60}$	Fines Correction			ΔN	$(N_1)_{60}$	CRR 1998 eq.	Rd	CSR	FOS	SETTLEMENT (%)	SETTLEMENT (inches)
					psf	psf	energy	stress	5" diam	w/out liner	rod	interim Corr.	%fines	Alpha	Beta			<N=30					
1048.5	1	ML	16		120	1068	1.32	1.75	1.05	1.2	0.75		35	5.00	1.20				1.000	**0.051**	2.00		
1048	1.5	ML	16		180	1128	1.32	1.71	1.05	1.2	0.75		35	5.00	1.20				0.998	**0.072**	2.00		
1047.5	2	ML	16		240	1188	1.32	1.68	1.05	1.2	0.75		35	5.00	1.20				0.997	**0.091**	2.00		
1047	2.5	ML	16		300	1248	1.32	1.64	1.05	1.2	0.75		35	5.00	1.20				0.996	**0.109**	2.00		
1046.5	3	ML	16		360	1308	1.32	1.61	1.05	1.2	0.75		35	5.00	1.20				0.995	**0.124**	2.00		
1046	3.5	ML	16		420	1368	1.32	1.57	1.05	1.2	0.75		35	5.00	1.20				0.994	**0.139**	2.00		
1045.5	4	ML	16		480	1428	1.32	1.54	1.05	1.2	0.75		35	5.00	1.20				0.993	**0.151**	2.00		
1045	4.5	SP-SM	12		540	1488	1.32	1.51	1.05	1.2	0.75		10	0.87	1.02				0.991	**0.163**	2.00		
1044.5	5	SP-SM	12		600	1548	1.32	1.48	1.05	1.2	0.75		10	0.87	1.02				0.990	**0.174**	2.00		
1044	5.5	SP-SM	12		660	1608	1.32	1.46	1.05	1.2	0.75		10	0.87	1.02				0.989	**0.184**	2.00		
1043.5	6	SP-SM	12		720	1668	1.32	1.43	1.05	1.2	0.75		10	0.87	1.02				0.988	**0.194**	2.00		
1043	6.5	SP-SM	12		780	1728	1.32	1.40	1.05	1.2	0.75		10	0.87	1.02				0.987	**0.202**	2.00		
1042.5	7	SP-SM	12		840	1788	1.32	1.38	1.05	1.2	0.75		4	0.00	1.00				0.986	**0.210**	2.00		
1042	7.5	SP	12		900	1848	1.32	1.35	1.05	1.2	0.75		4	0.00	1.00				0.985	**0.218**	2.00		
1041.5	8	SP	12		960	1908	1.32	1.33	1.05	1.2	0.75		4	0.00	1.00				0.983	**0.225**	2.00		
1041	8.5	SP	12		1020	1968	1.32	1.31	1.05	1.2	0.75		4	0.00	1.00				0.982	**0.231**	2.00		
1040.5	9	SP	12		1080	2028	1.32	1.29	1.05	1.2	0.75		4	0.00	1.00				0.981	**0.237**	2.00		
1040	9.5	SP	12		1140	2088	1.32	1.27	1.05	1.2	0.75		4	0.00	1.00				0.980	**0.243**	2.00		
1039.5	10	SP	12		1200	2148	1.32	1.24	1.05	1.2	0.75		4	0.00	1.00				0.979	**0.248**	2.00		
1039	10.5	SP	12		1260	2208	1.32	1.23	1.05	1.2	0.75		4	0.00	1.00				0.978	**0.253**	2.00		
1038.5	11	SP	12		1320	2268	1.32	1.21	1.05	1.2	0.75		4	0.00	1.00				0.977	**0.258**	2.00		
1038	11.5	SP	12		1380	2328	1.32	1.19	1.05	1.2	0.75		4	0.00	1.00				0.976	**0.263**	2.00		
1037.5	12	SP	12		1440	2388	1.32	1.17	1.05	1.2	0.75		4	0.00	1.00				0.975	**0.267**	2.00		
1037	12.5	SP-SM	26		1500	2448	1.32	1.15	1.05	1.2	0.75		8	0.30	1.01				0.974	**0.271**	2.00		
1036.5	13	SP-SM	26		1560	2508	1.32	1.14	1.05	1.2	0.85		8	0.30	1.01				0.973	**0.275**	2.00		
1036	13.5	SP-SM	26		1620	2568	1.32	1.12	1.05	1.2	0.85		8	0.30	1.01				0.972	**0.278**	2.00		
1035.5	14	SP-SM	26		1680	2628	1.32	1.10	1.05	1.2	0.85		8	0.30	1.01				0.971	**0.282**	2.00		
1035	14.5	SP-SM	26		1740	2688	1.32	1.09	1.05	1.2	0.85		8	0.30	1.01				0.970	**0.285**	2.00		
1034.5	15	SP-SM	26		1800	2748	1.32	1.07	1.05	1.2	0.85		8	0.30	1.01				0.969	**0.288**	2.00		
1034	15.5	SP-SM	26		1860	2808	1.32	1.06	1.05	1.2	0.85		8	0.30	1.01				0.967	**0.291**	2.00		
1033.5	16	SP-SM	30		1920	2868	1.32	1.04	1.05	1.2	0.85		10	0.87	1.02				0.966	**0.294**	2.00		
1033	16.5	SP-SM	30		1980	2928	1.32	1.03	1.05	1.2	0.85		10	0.87	1.02				0.965	**0.296**	2.00		
1032.5	17	SP-SM	13		2040	2988	1.32	1.02	1.05	1.2	0.85		10	0.87	1.02				0.964	**0.299**	2.00		
1032	17.5	SP-SM	13		2100	3048	1.32	1.00	1.05	1.2	0.85		10	0.87	1.02				0.963	**0.301**	2.00		
1031.5	18	SP-SM	13		2160	3102	1.32	0.99	1.05	1.2	0.85	18.2	10	0.87	1.02	1.3	**19**	0.209	0.962	**0.304**	0.87	0.015	0.090
1031	18.5	SP-SM	13		2220	3131	1.32	0.98	1.05	1.2	0.85	18.0	10	0.87	1.02	1.3	**19**	0.206	0.961	**0.309**	0.84	0.015	0.090
1030.5	19	SP-SM	13		2280	3160	1.32	0.97	1.05	1.2	0.85	17.8	10	0.87	1.02	1.3	**19**	0.203	0.959	**0.314**	0.82	0.015	0.090
1030	19.5	SP-SM	13		2340	3189	1.32	0.95	1.05	1.2	0.85	17.5	10	0.87	1.02	1.2	**19**	0.201	0.958	**0.319**	0.80	0.015	0.090
1029.5	20	SP-SM	13		2400	3218	1.32	0.94	1.05	1.2	0.95	19.4	10	0.87	1.02	1.3	**21**	0.224	0.957	**0.324**	0.87	0.014	0.084
1029	20.5	SP-SM	13		2460	3247	1.32	0.93	1.05	1.2	0.95	19.1	10	0.87	1.02	1.3	**20**	0.221	0.956	**0.329**	0.85	0.014	0.084
1028.5	21	SM	15		2520	3276	1.32	0.92	1.05	1.2	0.95	21.8	33	4.88	1.18	8.8	**31**		0.954	**0.333**	2.00		
1028	21.5	SM	15		2580	3305	1.32	0.91	1.05	1.2	0.95	21.6	33	4.88	1.18	8.8	**30**		0.953	**0.338**	2.00		
1027.5	22	SM	15		2640	3334	1.32	0.90	1.05	1.2	0.95	21.3	33	4.88	1.18	8.7	**30**		0.951	**0.342**	2.00		
1027	22.5	ML	5	YES	2700	3363	1.32	0.89	1.05	1.2	0.95	7.0	33	4.88	1.18	6.1	**13**	0.142	0.950	**0.346**	0.52	0.020	0.000
1026.5	23	ML	5	YES	2760	3392	1.32	0.88	1.05	1.2	0.95	6.9	33	4.88	1.18	6.1	**13**	0.141	0.948	**0.350**	0.51	0.020	0.000
1026	23.5	ML	5	YES	2789	3421	1.32	0.87	1.05	1.2	0.95	6.9	33	4.88	1.18	6.1	**13**	0.141	0.947	**0.354**	0.50	0.020	0.000
1025.5	24	ML	5	YES	2818	3450	1.32	0.87	1.05	1.2	0.95	6.9	33	4.88	1.18	6.1	**13**	0.140	0.945	**0.358**	0.50	0.021	0.000
1025	24.5	ML	5	YES	2847	3479	1.32	0.86	1.05	1.2	0.95	6.8	33	4.88	1.18	6.1	**13**	0.140	0.944	**0.362**	0.49	0.021	0.000
1024.5	25	ML	17		2876	3508	1.32	0.86	1.05	1.2	0.95	23.1	33	4.88	1.18	9.0	**32**		0.942	**0.366**	2.00		
1024	25.5	ML	17		2905	3537	1.32	0.86	1.05	1.2	0.95	23.0	33	4.88	1.18	9.0	**32**		0.940	**0.369**	2.00		
1023.5	26	ML	17		2934	3566	1.32	0.85	1.05	1.2	0.95	22.8	33	4.88	1.18	9.0	**32**		0.938	**0.373**	2.00		
1023	26.5	ML	17		2963	3595	1.32	0.85	1.05	1.2	0.95	22.7	33	4.88	1.18	9.0	**32**		0.936	**0.376**	2.00		
1022.5	27	ML	17		2992	3624	1.32	0.84	1.05	1.2	0.95	22.6	33	4.88	1.18	8.9	**32**		0.934	**0.379**	2.00		
1022	27.5	ML	17		3021	3653	1.32	0.84	1.05	1.2	0.95	22.5	33	4.88	1.18	8.9	**31**		0.932	**0.382**	2.00		
1021.5	28	ML	17		3050	3682	1.32	0.83	1.05	1.2	0.95	22.4	33	4.88	1.18	8.9	**31**		0.930	**0.385**	2.00		
1021	28.5	SW-SM	27		3079	3711	1.32	0.83	1.05	1.2	0.95	35.3	9	0.56	1.02	1.2	**37**		0.928	**0.388**	2.00		
1020.5	29	SW-SM	27		3108	3740	1.32	0.82	1.05	1.2	0.95	35.2	9	0.56	1.02	1.2	**36**		0.925	**0.391**	2.00		
1020	29.5	SW-SM	27		3137	3769	1.32	0.82	1.05	1.2	0.95	35.0	9	0.56	1.02	1.2	**36**		0.923	**0.394**	2.00		

1019.5	30	SW-SM	27		3166	3798	1.32	0.82	1.05	1.2	0.95	34.8	9	0.56	1.02	1.1	36	0.921	0.396	2.00		
1019	30.5	SW-SM	36		3195	3827	1.32	0.81	1.05	1.2	0.95	46.2	9	0.56	1.02	1.3	48	0.918	0.399	2.00		
1018.5	31	SW-SM	36		3224	3856	1.32	0.81	1.05	1.2	0.95	45.9	9	0.56	1.02	1.3	47	0.915	0.401	2.00		
1018	31.5	SW-SM	36		3253	3885	1.32	0.80	1.05	1.2	0.95	45.7	9	0.56	1.02	1.3	47	0.913	0.403	2.00		
1017.5	32	SW-SM	36		3282	3914	1.32	0.80	1.05	1.2	0.95	45.5	9	0.56	1.02	1.3	47	0.910	0.405	2.00		
1017	32.5	SW-SM	36		3311	3943	1.32	0.80	1.05	1.2	0.95	45.3	9	0.56	1.02	1.3	47	0.907	0.407	2.00		
1016.5	33	ML	27		3340	3972	1.32	0.79	1.05	1.2	1	35.6	35	5.00	1.20	12.1	48	0.904	0.409	2.00		
1016	33.5	ML	27		3369	4001	1.32	0.79	1.05	1.2	1	35.4	35	5.00	1.20	12.1	47	0.901	0.411	2.00		
1015.5	34	SW	38		3398	4030	1.32	0.78	1.05	1.2	1	49.6	5	0.00	1.00	0.1	50	0.897	0.413	2.00		
1015	34.5	SW	38		3427	4059	1.32	0.78	1.05	1.2	1	49.3	5	0.00	1.00	0.1	49	0.894	0.414	2.00		
1014.5	35	SW	38		3456	4088	1.32	0.78	1.05	1.2	1	49.1	5	0.00	1.00	0.1	49	0.891	0.415	2.00		
1014	35.5	SW	38		3485	4117	1.32	0.77	1.05	1.2	1	48.8	5	0.00	1.00	0.1	49	0.887	0.417	2.00		
1013.5	36	SW	38		3514	4146	1.32	0.77	1.05	1.2	1	48.6	5	0.00	1.00	0.1	49	0.883	0.418	2.00		
1013	36.5	SW	38		3543	4175	1.32	0.77	1.05	1.2	1	48.4	5	0.00	1.00	0.1	48	0.880	0.419	2.00		
1012.5	37	SW	38		3572	4204	1.32	0.76	1.05	1.2	1	48.1	5	0.00	1.00	0.1	48	0.876	0.420	2.00		
1012	37.5	SW	38		3601	4233	1.32	0.76	1.05	1.2	1	47.9	5	0.00	1.00	0.1	48	0.872	0.421	2.00		
1011.5	38	SW	37		3630	4262	1.32	0.75	1.05	1.2	1	46.4	5	0.00	1.00	0.1	46	0.868	0.422	2.00		
1011	38.5	SW	37		3659	4291	1.32	0.75	1.05	1.2	1	46.2	5	0.00	1.00	0.1	46	0.864	0.422	2.00		
1010.5	39	SW	37		3688	4320	1.32	0.75	1.05	1.2	1	46.0	5	0.00	1.00	0.1	46	0.860	0.423	2.00		
1010	39.5	SW	37		3717	4349	1.32	0.74	1.05	1.2	1	45.8	5	0.00	1.00	0.1	46	0.855	0.423	2.00		
1009.5	40	SW	37		3746	4378	1.32	0.74	1.05	1.2	1	45.6	5	0.00	1.00	0.1	46	0.851	0.424	2.00		
1009	40.5	ML	51		3775	4407	1.32	0.74	1.05	1.2	1	62.5	35	5.00	1.20	17.5	80	0.847	0.424	2.00		
1008.5	41	SW	51		3804	4436	1.32	0.73	1.05	1.2	1	62.3	5	0.00	1.00	0.1	62	0.842	0.424	2.00		
1008	41.5	SW	51		3833	4465	1.32	0.73	1.05	1.2	1	62.0	5	0.00	1.00	0.1	62	0.837	0.424	2.00		
1007.5	42	SW	51		3862	4494	1.32	0.73	1.05	1.2	1	61.7	5	0.00	1.00	0.1	62	0.833	0.424	2.00		
1007	42.5	SW	51		3891	4523	1.32	0.72	1.05	1.2	1	61.4	5	0.00	1.00	0.1	61	0.828	0.424	2.00		
1006.5	43	ML	44		3920	4552	1.32	0.72	1.05	1.2	1	52.7	35	5.00	1.20	15.5	68	0.823	0.424	2.00		
1006	43.5	SW	50		3949	4581	1.32	0.72	1.05	1.2	1	59.7	5	0.00	1.00	0.1	60	0.818	0.423	2.00		
1005.5	44	SW	50		3978	4610	1.32	0.71	1.05	1.2	1	59.4	5	0.00	1.00	0.1	59	0.814	0.423	2.00		
1005	44.5	SW	50		4007	4639	1.32	0.71	1.05	1.2	1	59.1	5	0.00	1.00	0.1	59	0.809	0.423	2.00		
1004.5	45	SW	50		4036	4668	1.32	0.71	1.05	1.2	1	58.9	5	0.00	1.00	0.1	59	0.804	0.422	2.00		
1004	45.5	SW	50		4065	4697	1.32	0.70	1.05	1.2	1	58.6	5	0.00	1.00	0.1	59	0.799	0.422	2.00		
1003.5	46	SW	50		4094	4726	1.32	0.70	1.05	1.2	1	58.4	5	0.00	1.00	0.1	58	0.794	0.421	2.00		
1003	46.5	SW	50		4123	4755	1.32	0.70	1.05	1.2	1	58.1	5	0.00	1.00	0.1	58	0.788	0.420	2.00		
1002.5	47	SW	50		4152	4784	1.32	0.70	1.05	1.2	1	57.9	5	0.00	1.00	0.1	58	0.783	0.419	2.00		
1002	47.5	SW	50		4181	4813	1.32	0.69	1.05	1.2	1	57.6	5	0.00	1.00	0.1	58	0.778	0.419	2.00		
1001.5	48	SW	50		4210	4842	1.32	0.69	1.05	1.2	1	57.4	5	0.00	1.00	0.1	57	0.773	0.418	2.00		
1001	48.5	SW	50		4239	4871	1.32	0.69	1.05	1.2	1	57.1	5	0.00	1.00	0.1	57	0.768	0.417	2.00		
1000.5	49	SW	50		4268	4900	1.32	0.68	1.05	1.2	1	56.9	5	0.00	1.00	0.1	57	0.763	0.416	2.00		
1000	49.5	SW	50		4297	4929	1.32	0.68	1.05	1.2	1	56.6	5	0.00	1.00	0.1	57	0.758	0.415	2.00		
999.5	50	SW	50		4326	4958	1.32	0.68	1.05	1.2	1	56.4	5	0.00	1.00	0.1	56	0.753	0.414	2.00		
999	50.5	SW	50		4355	4987	1.32	0.68	1.05	1.2	1	56.2	5	0.00	1.00	0.1	56	0.748	0.413	2.00		
998.5	51	SW	50		4384	5016	1.32	0.67	1.05	1.2	1	55.9	5	0.00	1.00	0.1	56	0.743	0.411	2.00		
998	51.5	SW	50		4413	5045	1.32	0.67	1.05	1.2	1	55.7	5	0.00	1.00	0.1	56	0.738	0.410	2.00		
997.5	52	SW	50		4442	5074	1.32	0.67	1.05	1.2	1	55.5	5	0.00	1.00	0.1	56	0.733	0.409	2.00		
997	52.5	SW	50		4471	5103	1.32	0.66	1.05	1.2	1	55.2	5	0.00	1.00	0.1	55	0.728	0.408	2.00		
996.5	53	SW	50		4500	5132	1.32	0.66	1.05	1.2	1	55.0	5	0.00	1.00	0.1	55	0.723	0.407	2.00		
996	53.5	SW	50		4529	5161	1.32	0.66	1.05	1.2	1	54.8	5	0.00	1.00	0.1	55	0.718	0.405	2.00		
995.5	54	SW	50		4558	5190	1.32	0.66	1.05	1.2	1	54.5	5	0.00	1.00	0.1	55	0.713	0.404	2.00		
995	54.5	SW	50		4587	5219	1.32	0.65	1.05	1.2	1	54.3	5	0.00	1.00	0.1	54	0.708	0.403	2.00		
994.5	55	SW	50		4616	5248	1.32	0.65	1.05	1.2	1	54.1	5	0.00	1.00	0.1	54	0.703	0.402	2.00		
994	55.5	SW	50		4645	5277	1.32	0.65	1.05	1.2	1	53.9	5	0.00	1.00	0.1	54	0.699	0.400	2.00		
993.5	56	SW	50		4674	5306	1.32	0.65	1.05	1.2	1	53.7	5	0.00	1.00	0.1	54	0.694	0.399	2.00		
993	56.5	SW	50		4703	5335	1.32	0.64	1.05	1.2	1	53.5	5	0.00	1.00	0.1	54	0.689	0.398	2.00		
992.5	57	SW	50		4732	5364	1.32	0.64	1.05	1.2	1	53.2	5	0.00	1.00	0.1	53	0.685	0.397	2.00		
992	57.5	SW	50		4761	5393	1.32	0.64	1.05	1.2	1	53.0	5	0.00	1.00	0.1	53	0.680	0.395	2.00		
991.5	58	SW	50		4790	5422	1.32	0.64	1.05	1.2	1	52.8	5	0.00	1.00	0.1	53	0.676	0.394	2.00		
991	58.5	SW	50		4819	5451	1.32	0.63	1.05	1.2	1	52.6	5	0.00	1.00	0.1	53	0.672	0.393	2.00		
990.5	59	SW	50		4848	5480	1.32	0.63	1.05	1.2	1	52.4	5	0.00	1.00	0.1	52	0.668	0.392	2.00		
990	59.5	SW	50		4877	5509	1.32	0.63	1.05	1.2	1	52.2	5	0.00	1.00	0.1	52	0.663	0.390	2.00		
989.5	60	SW	50		4906	5538	1.32	0.63	1.05	1.2	1	52.0	5	0.00	1.00	0.1	52	0.659	0.389	2.00		
989	60.5	SW	50		4935	5567	1.32	0.62	1.05	1.2	1	51.8	5	0.00	1.00	0.1	52	0.655	0.388	2.00		
988.5	61	SW	50		4964	5596	1.32	0.62	1.05	1.2	1	51.6	5	0.00	1.00	0.1	52	0.651	0.387	2.00		
						948								0.00	1.00						0.000	
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SPT Liquefaction Spreadsheet

JOB NAME	Prpoosed Temecula Hospital	Boring	GDI-10		
DATE	8/12/2010	*y*	120	pcf	
BY	CJZ	GW level	26	ft	
CHECKED BY		HHGL	16.4	ft	
DATE		GS Elevation	1051		
		LFFE	1057.5		

Magnitue	a max
6.84	0.88

MSF 1.27

Total Settlement 0.66 INCHES

Elevation (MSL)	Depth (feet)	Soil Type	Nfield	Boulanger and Idriss (2006)	σo' (psf) current	σo' (psf) HHGWL	C_E	C_N	C_B	C_S	C_R	$(N_1)_{60}$	Fines Correction			ΔN	$(N_1)_{60}$	CRR 1998 eq.	Rd	CSR	FOS	SETTLEMENT (%)	SETTLEMENT (inches)
					psf	psf	energy	stress	5" diam	w/out liner	rod	interim Corr.	%fines	Alpha	Beta		<N=30						
1050	1	SP-SM	7		120	900	1.32	1.75	1.05	1.2	0.75		10	0.87	1.02				1.000	**0.061**	2.00		
1049.5	1.5	SP-SM	7		180	960	1.32	1.71	1.05	1.2	0.75		10	0.87	1.02				0.998	**0.085**	2.00		
1049	2	SP-SM	7		240	1020	1.32	1.68	1.05	1.2	0.75		10	0.87	1.02				0.997	**0.107**	2.00		
1048.5	2.5	SP-SM	7		300	1080	1.32	1.64	1.05	1.2	0.75		10	0.87	1.02				0.996	**0.126**	2.00		
1048	3	SP-SM	7		360	1140	1.32	1.61	1.05	1.2	0.75		10	0.87	1.02				0.995	**0.143**	2.00		
1047.5	3.5	SP-SM	7		420	1200	1.32	1.57	1.05	1.2	0.75		10	0.87	1.02				0.994	**0.158**	2.00		
1047	4	SP-SM	7		480	1260	1.32	1.54	1.05	1.2	0.75		10	0.87	1.02				0.993	**0.172**	2.00		
1046.5	4.5	SP-SM	7		540	1320	1.32	1.51	1.05	1.2	0.75		10	0.87	1.02				0.991	**0.184**	2.00		
1046	5	SP-SM	7		600	1380	1.32	1.48	1.05	1.2	0.75		10	0.87	1.02				0.990	**0.195**	2.00		
1045.5	5.5	SP-SM	9		660	1440	1.32	1.46	1.05	1.2	0.75		10	0.87	1.02				0.989	**0.206**	2.00		
1045	6	SP-SM	9		720	1500	1.32	1.43	1.05	1.2	0.75		10	0.87	1.02				0.988	**0.215**	2.00		
1044.5	6.5	SP-SM	9		780	1560	1.32	1.40	1.05	1.2	0.75		10	0.87	1.02				0.987	**0.224**	2.00		
1044	7	SP-SM	9		840	1620	1.32	1.38	1.05	1.2	0.75		10	0.87	1.02				0.986	**0.232**	2.00		
1043.5	7.5	ML	21		900	1680	1.32	1.35	1.05	1.2	0.75		35	5.00	1.20				0.985	**0.239**	2.00		
1043	8	ML	21		960	1740	1.32	1.33	1.05	1.2	0.75		35	5.00	1.20				0.983	**0.246**	2.00		
1042.5	8.5	ML	21		1020	1800	1.32	1.31	1.05	1.2	0.75		35	5.00	1.20				0.982	**0.253**	2.00		
1042	9	ML	21		1080	1860	1.32	1.29	1.05	1.2	0.75		35	5.00	1.20				0.981	**0.259**	2.00		
1041.5	9.5	ML	21		1140	1920	1.32	1.27	1.05	1.2	0.75		35	5.00	1.20				0.980	**0.264**	2.00		
1041	10	SP-SM	18		1200	1980	1.32	1.24	1.05	1.2	0.75		9	0.56	1.02				0.979	**0.269**	2.00		
1040.5	10.5	SP-SM	18		1260	2040	1.32	1.23	1.05	1.2	0.75		9	0.56	1.02				0.978	**0.274**	2.00		
1040	11	SP-SM	18		1320	2100	1.32	1.21	1.05	1.2	0.75		9	0.56	1.02				0.977	**0.279**	2.00		
1039.5	11.5	SP-SM	18		1380	2160	1.32	1.19	1.05	1.2	0.75		9	0.56	1.02				0.976	**0.283**	2.00		
1039	12	SP-SM	18		1440	2220	1.32	1.17	1.05	1.2	0.75		9	0.56	1.02				0.975	**0.287**	2.00		
1038.5	12.5	SP	18		1500	2280	1.32	1.15	1.05	1.2	0.75		5	0.00	1.00				0.974	**0.291**	2.00		
1038	13	SP	18		1560	2340	1.32	1.14	1.05	1.2	0.85		5	0.00	1.00				0.973	**0.294**	2.00		
1037.5	13.5	SP	18		1620	2400	1.32	1.12	1.05	1.2	0.85		5	0.00	1.00				0.972	**0.298**	2.00		
1037	14	SP	18		1680	2460	1.32	1.10	1.05	1.2	0.85		5	0.00	1.00				0.971	**0.301**	2.00		
1036.5	14.5	SP	18		1740	2520	1.32	1.09	1.05	1.2	0.85		5	0.00	1.00				0.970	**0.304**	2.00		
1036	15	SP	18		1800	2580	1.32	1.07	1.05	1.2	0.85		5	0.00	1.00				0.969	**0.307**	2.00		
1035.5	15.5	SP-SM	30		1860	2640	1.32	1.06	1.05	1.2	0.85		9	0.56	1.02				0.967	**0.309**	2.00		
1035	16	SP-SM	30		1920	2700	1.32	1.04	1.05	1.2	0.85		9	0.56	1.02				0.966	**0.312**	2.00		
1034.5	16.5	SP-SM	30		1980	2754	1.32	1.03	1.05	1.2	0.85	43.7	9	0.56	1.02	1.3	**45.0**		0.965	**0.315**	2.00		
1034	17	SP-SM	30		2040	2783	1.32	1.02	1.05	1.2	0.85	43.1	9	0.56	1.02	1.3	**44.4**		0.964	**0.321**	2.00		
1033.5	17.5	SP-SM	34		2100	2812	1.32	1.00	1.05	1.2	0.85	48.2	9	0.56	1.02	1.4	**49.6**		0.963	**0.327**	2.00		
1033	18	SP-SM	34		2160	2841	1.32	0.99	1.05	1.2	0.85	47.6	9	0.56	1.02	1.4	**49.0**		0.962	**0.332**	2.00		
1032.5	18.5	SP-SM	34		2220	2870	1.32	0.98	1.05	1.2	0.85	47.0	9	0.56	1.02	1.4	**48.4**		0.961	**0.337**	2.00		
1032	19	SP-SM	34		2280	2899	1.32	0.97	1.05	1.2	0.85	46.4	9	0.56	1.02	1.3	**47.8**		0.959	**0.343**	2.00		
1031.5	19.5	SP-SM	34		2340	2928	1.32	0.95	1.05	1.2	0.85	45.9	9	0.56	1.02	1.3	**47.2**		0.958	**0.348**	2.00		
1031	20	SP-SM	34		2400	2957	1.32	0.94	1.05	1.2	0.95	50.6	9	0.56	1.02	1.4	**52.0**		0.957	**0.353**	2.00		
1030.5	20.5	SM	16		2460	2986	1.32	0.93	1.05	1.2	0.95	23.5	33	4.88	1.18	9.1	**32.7**		0.956	**0.357**	2.00		
1030	21	SM	16		2520	3015	1.32	0.92	1.05	1.2	0.95	23.3	33	4.88	1.18	9.1	**32.3**		0.954	**0.362**	2.00		
1029.5	21.5	SM	16		2580	3044	1.32	0.91	1.05	1.2	0.95	23.0	33	4.88	1.18	9.0	**32.0**		0.953	**0.367**	2.00		
1029	22	SM	16		2640	3073	1.32	0.90	1.05	1.2	0.95	22.7	33	4.88	1.18	9.0	**31.7**		0.951	**0.371**	2.00		
1028.5	22.5	ML	12		2700	3102	1.32	0.89	1.05	1.2	0.95	16.8	56	5.00	1.20	8.4	**25.2**	0.296	0.950	**0.375**	1.00	0.011	0.066
1028	23	ML	12		2760	3131	1.32	0.88	1.05	1.2	0.95	16.7	56	5.00	1.20	8.3	**25.0**	0.292	0.948	**0.380**	0.97	0.014	0.084
1027.5	23.5	ML	12		2820	3160	1.32	0.87	1.05	1.2	0.95	16.5	56	5.00	1.20	8.3	**24.8**	0.287	0.947	**0.384**	0.95	0.014	0.084
1027	24	ML	12		2880	3189	1.32	0.86	1.05	1.2	0.95	16.3	56	5.00	1.20	8.3	**24.5**	0.283	0.945	**0.388**	0.92	0.014	0.084
1026.5	24.5	ML	10	YES	2940	3218	1.32	0.85	1.05	1.2	0.95	13.4	56	5.00	1.20	7.7	**21.1**	0.230	0.944	**0.391**	0.74	0.014	0.000
1026	25	ML	10	YES	3000	3247	1.32	0.84	1.05	1.2	0.95	13.3	56	5.00	1.20	7.7	**20.9**	0.227	0.942	**0.395**	0.73	0.014	0.000
1025.5	25.5	ML	10	YES	3060	3276	1.32	0.83	1.05	1.2	0.95	13.1	56	5.00	1.20	7.6	**20.8**	0.225	0.940	**0.399**	0.71	0.014	0.000
1025	26	ML	10	YES	3120	3305	1.32	0.82	1.05	1.2	0.95	13.0	56	5.00	1.20	7.6	**20.6**	0.223	0.938	**0.402**	0.70	0.014	0.000
1024.5	26.5	ML	10	YES	3149	3334	1.32	0.82	1.05	1.2	0.95	12.9	56	5.00	1.20	7.6	**20.5**	0.222	0.936	**0.405**	0.69	0.014	0.000
1024	27	ML	10	YES	3178	3363	1.32	0.81	1.05	1.2	0.95	12.9	56	5.00	1.20	7.6	**20.4**	0.221	0.934	**0.409**	0.68	0.014	0.000
1023.5	27.5	ML	22	YES	3207	3392	1.32	0.81	1.05	1.2	0.95	28.2	29	4.64	1.15	8.8	**36.9**		0.932	**0.412**	2.00		
1023	28	ML	22	YES	3236	3421	1.32	0.81	1.05	1.2	0.95	28.0	29	4.64	1.15	8.7	**36.8**		0.930	**0.415**	2.00		
1022.5	28.5	ML	22	YES	3265	3450	1.32	0.80	1.05	1.2	0.95	27.9	29	4.64	1.15	8.7	**36.6**		0.928	**0.418**	2.00		
1022	29	SM	22	YES	3294	3479	1.32	0.80	1.05	1.2	0.95	27.7	29	4.64	1.15	8.7	**36.4**		0.925	**0.420**	2.00		
1021.5	29.5	SM	19		3323	3508	1.32	0.79	1.05	1.2	0.95	23.8	21	3.78	1.09	5.8	**29.7**	0.446	0.923	**0.423**	1.34	0.000	0.002

1021	30	SM	19		3352	3537	1.32	0.79	1.05	1.2	0.95	23.7	21	3.78	1.09	5.8	**29.5**	0.439	0.921	**0.425**	1.31	0.000	0.002
1020.5	30.5	SM	19		3381	3566	1.32	0.79	1.05	1.2	0.95	23.6	21	3.78	1.09	5.8	**29.4**	0.432	0.918	**0.428**	1.28	0.000	0.002
1020	31	SM	19		3410	3595	1.32	0.78	1.05	1.2	0.95	23.5	21	3.78	1.09	5.8	**29.3**	0.425	0.915	**0.430**	1.25	0.000	0.002
1019.5	31.5	SM	19		3439	3624	1.32	0.78	1.05	1.2	0.95	23.4	21	3.78	1.09	5.8	**29.2**	0.419	0.913	**0.432**	1.23	0.001	0.005
1019	32	SM	19		3468	3653	1.32	0.77	1.05	1.2	0.95	23.3	21	3.78	1.09	5.8	**29.0**	0.413	0.910	**0.434**	1.20	0.001	0.005
1018.5	32.5	SP	19		3497	3682	1.32	0.77	1.05	1.2	0.95	23.2	21	3.78	1.09	5.8	**28.9**	0.407	0.907	**0.436**	1.18	0.001	0.005
1018	33	SP	19		3526	3711	1.32	0.77	1.05	1.2	1	24.3	12	1.55	1.03	2.3	**26.6**	0.327	0.904	**0.438**	0.95	0.011	0.066
1017.5	33.5	SP	17		3555	3740	1.32	0.76	1.05	1.2	1	21.6	12	1.55	1.03	2.2	**23.8**	0.271	0.901	**0.440**	0.78	0.014	0.084
1017	34	SP	17		3584	3769	1.32	0.76	1.05	1.2	1	21.5	12	1.55	1.03	2.2	**23.7**	0.269	0.897	**0.441**	0.77	0.014	0.084
1016.5	34.5	SP	17		3613	3798	1.32	0.76	1.05	1.2	1	21.4	12	1.55	1.03	2.2	**23.6**	0.267	0.894	**0.443**	0.76	0.014	0.084
1016	35	SP-SM	31		3642	3827	1.32	0.75	1.05	1.2	1	38.8	7	0.12	1.01	0.5	**39.3**		0.891	**0.444**	2.00		
1015.5	35.5	SP-SM	31		3671	3856	1.32	0.75	1.05	1.2	1	38.6	7	0.12	1.01	0.4	**39.1**		0.887	**0.445**	2.00		
1015	36	SP-SM	31		3700	3885	1.32	0.75	1.05	1.2	1	38.5	7	0.12	1.01	0.4	**38.9**		0.883	**0.446**	2.00		
1014.5	36.5	SP-SM	31		3729	3914	1.32	0.74	1.05	1.2	1	38.3	7	0.12	1.01	0.4	**38.7**		0.880	**0.447**	2.00		
1014	37	SP-SM	31		3758	3943	1.32	0.74	1.05	1.2	1	38.1	7	0.12	1.01	0.4	**38.6**		0.876	**0.448**	2.00		
1013.5	37.5	SP-SM	31		3787	3972	1.32	0.74	1.05	1.2	1	37.9	7	0.12	1.01	0.4	**38.4**		0.872	**0.449**	2.00		
1013	38	SP-SM	38		3816	4001	1.32	0.73	1.05	1.2	1	46.3	7	0.12	1.01	0.5	**46.8**		0.868	**0.449**	2.00		
1012.5	38.5	SP-SM	38		3845	4030	1.32	0.73	1.05	1.2	1	46.1	7	0.12	1.01	0.5	**46.6**		0.864	**0.450**	2.00		
1012	39	SP-SM	38		3874	4059	1.32	0.73	1.05	1.2	1	45.9	7	0.12	1.01	0.5	**46.4**		0.860	**0.450**	2.00		
1011.5	39.5	SP-SM	38		3903	4088	1.32	0.72	1.05	1.2	1	45.7	7	0.12	1.01	0.5	**46.2**		0.855	**0.450**	2.00		
1011	40	SM	29		3932	4117	1.32	0.72	1.05	1.2	1	34.7	22	3.93	1.09	7.2	**41.9**		0.851	**0.451**	2.00		
1010.5	40.5	SM	29		3961	4146	1.32	0.72	1.05	1.2	1	34.5	22	3.93	1.09	7.1	**41.7**		0.847	**0.451**	2.00		
1010	41	SM	29		3990	4175	1.32	0.71	1.05	1.2	1	34.4	22	3.93	1.09	7.1	**41.5**		0.842	**0.451**	2.00		
1009.5	41.5	SM	29		4019	4204	1.32	0.71	1.05	1.2	1	34.2	22	3.93	1.09	7.1	**41.4**		0.837	**0.450**	2.00		
1009	42	SM	29		4048	4233	1.32	0.71	1.05	1.2	1	34.1	22	3.93	1.09	7.1	**41.2**		0.833	**0.450**	2.00		
1008.5	42.5	SM	29		4077	4262	1.32	0.70	1.05	1.2	1	33.9	22	3.93	1.09	7.1	**41.0**		0.828	**0.450**	2.00		
1008	43	SP	55		4106	4291	1.32	0.70	1.05	1.2	1	64.1	5	0.00	1.00	0.1	**64.2**		0.823	**0.450**	2.00		
1007.5	43.5	SP	55		4135	4320	1.32	0.70	1.05	1.2	1	63.8	5	0.00	1.00	0.1	**63.9**		0.818	**0.449**	2.00		
1007	44	SP	55		4164	4349	1.32	0.69	1.05	1.2	1	63.5	5	0.00	1.00	0.1	**63.6**		0.814	**0.448**	2.00		
1006.5	44.5	SP	55		4193	4378	1.32	0.69	1.05	1.2	1	63.3	5	0.00	1.00	0.1	**63.3**		0.809	**0.448**	2.00		
1006	45	SP-SM	25		4222	4407	1.32	0.69	1.05	1.2	1	28.6	12	1.55	1.03	2.5	**31.1**		0.804	**0.447**	2.00		
1005.5	45.5	SP-SM	25		4251	4436	1.32	0.69	1.05	1.2	1	28.5	12	1.55	1.03	2.5	**31.0**		0.799	**0.446**	2.00		
1005	46	SP-SM	25		4280	4465	1.32	0.68	1.05	1.2	1	28.4	12	1.55	1.03	2.4	**30.8**		0.794	**0.445**	2.00		
1004.5	46.5	SP-SM	25		4309	4494	1.32	0.68	1.05	1.2	1	28.3	12	1.55	1.03	2.4	**30.7**		0.788	**0.445**	2.00		
1004	47	SP-SM	25		4338	4523	1.32	0.68	1.05	1.2	1	28.1	12	1.55	1.03	2.4	**30.6**		0.783	**0.444**	2.00		
1003.5	47.5	SP-SM	25		4367	4552	1.32	0.67	1.05	1.2	1	28.0	12	1.55	1.03	2.4	**30.5**		0.778	**0.443**	2.00		
1003	48	SP-SM	25		4396	4581	1.32	0.67	1.05	1.2	1	27.9	12	1.55	1.03	2.4	**30.3**		0.773	**0.441**	2.00		
1002.5	48.5	SP-SM	25		4425	4610	1.32	0.67	1.05	1.2	1	27.8	12	1.55	1.03	2.4	**30.2**		0.768	**0.440**	2.00		
1002	49	SP-SM	25		4454	4639	1.32	0.67	1.05	1.2	1	27.7	12	1.55	1.03	2.4	**30.1**		0.763	**0.439**	2.00		
1001.5	49.5	SW	77		4483	4668	1.32	0.66	1.05	1.2	1	84.9	12	1.55	1.03	4.2	**89.1**		0.758	**0.438**	2.00		
1001	50	SW	77		4512	4697	1.32	0.66	1.05	1.2	1	84.5	12	1.55	1.03	4.2	**88.8**		0.753	**0.437**	2.00		
1000.5	50.5	SW	77		4541	4726	1.32	0.66	1.05	1.2	1	84.2	12	1.55	1.03	4.2	**88.4**		0.748	**0.435**	2.00		
1000	51	SW	77		4570	4755	1.32	0.65	1.05	1.2	1	83.9	12	1.55	1.03	4.2	**88.1**		0.743	**0.434**	2.00		
999.5	51.5	SW	77		4599	4784	1.32	0.65	1.05	1.2	1	83.5	12	1.55	1.03	4.2	**87.7**		0.738	**0.433**	2.00		
999	52	SW	77		4628	4813	1.32	0.65	1.05	1.2	1	83.2	12	1.55	1.03	4.2	**87.4**		0.733	**0.431**	2.00		
998.5	52.5	SW	77		4657	4842	1.32	0.65	1.05	1.2	1	82.8	12	1.55	1.03	4.2	**87.0**		0.728	**0.430**	2.00		
998	53	SW	77		4686	4871	1.32	0.64	1.05	1.2	1	82.5	12	1.55	1.03	4.2	**86.7**		0.723	**0.428**	2.00		
997.5	53.5	SW	77		4715	4900	1.32	0.64	1.05	1.2	1	82.2	12	1.55	1.03	4.1	**86.3**		0.718	**0.427**	2.00		
997	54	SW	77		4744	4929	1.32	0.64	1.05	1.2	1	81.9	12	1.55	1.03	4.1	**86.0**		0.713	**0.426**	2.00		
996.5	54.5	SW	77		4773	4958	1.32	0.64	1.05	1.2	1	81.5	12	1.55	1.03	4.1	**85.7**		0.708	**0.424**	2.00		
996	55	SW	77		4802	4987	1.32	0.63	1.05	1.2	1	81.2	12	1.55	1.03	4.1	**85.3**		0.703	**0.423**	2.00		
995.5	55.5	SW	77		4831	5016	1.32	0.63	1.05	1.2	1	80.9	12	1.55	1.03	4.1	**85.0**		0.699	**0.421**	2.00		
995	56	SW	77		4860	5045	1.32	0.63	1.05	1.2	1	80.6	12	1.55	1.03	4.1	**84.7**		0.694	**0.420**	2.00		
994.5	56.5	SW	77		4889	5074	1.32	0.63	1.05	1.2	1	80.3	12	1.55	1.03	4.1	**84.3**		0.689	**0.418**	2.00		
994	57	SW	77		4918	5103	1.32	0.62	1.05	1.2	1	79.9	12	1.55	1.03	4.1	**84.0**		0.685	**0.417**	2.00		
993.5	57.5	SW	77		4947	5132	1.32	0.62	1.05	1.2	1	79.6	12	1.55	1.03	4.1	**83.7**		0.680	**0.415**	2.00		
993	58	SW	77		4976	5161	1.32	0.62	1.05	1.2	1	79.3	12	1.55	1.03	4.1	**83.4**		0.676	**0.414**	2.00		
992.5	58.5	SW	77		5005	5190	1.32	0.62	1.05	1.2	1	79.0	12	1.55	1.03	4.0	**83.1**		0.672	**0.413**	2.00		
992	59	SW	77		5034	5219	1.32	0.61	1.05	1.2	1	78.7	12	1.55	1.03	4.0	**82.8**		0.668	**0.411**	2.00		
991.5	59.5	SW	77		5063	5248	1.32	0.61	1.05	1.2	1	78.4	12	1.55	1.03	4.0	**82.5**		0.663	**0.410**	2.00		
991	60	SW	77		5092	5277	1.32	0.61	1.05	1.2	1	78.1	12	1.55	1.03	4.0	**82.1**		0.659	**0.408**	2.00		
990.5	60.5	SW	77		5121	5306	1.32	0.61	1.05	1.2	1	77.8	12	1.55	1.03	4.0	**81.8**		0.655	**0.407**	2.00		
990	61	SW	77		5150	5335	1.32	0.61	1.05	1.2	1	77.5	12	1.55	1.03	4.0	**81.5**		0.651	**0.406**	2.00		
						780								0.00	1.00						0.000	
						780															0.000	
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ACRONYMS

ACRONYMS

AC	asphalt concrete
ASCE	American Society of Civil Engineers
ASTM	American Society for Testing and Materials
BGS	below ground surface
CGS	California Geological Survey
CPT	cone penetrometer test
CUR	Central Utility Room
FEMA	Federal Emergency Management Agency
g	gravitational acceleration (32.2 feet/second^2)
H:V	horizontal to vertical
HDPE	high-density polyethylene
IBC	International Building Code
km	kilometers
MCE	maximum considered earthquake
mm/year	millimeters per year
MSL	mean sea level
N	north
NCEER	National Center for Earthquake Engineering Research
NE	northeast
NGA	Next Generation Attenuation
NNE	north-northeast
NNW	north-northwest
NW	northwest
OSHPD	Office of Statewide Health Planning and Development
PCC	portland cement concrete
pci	pounds per cubic inch
psi	pounds per square inch
PGA	peak ground acceleration
psf	pounds per square foot
PSHA	probabilistic seismic hazard analysis
PSI	Professional Service Industries, Inc.
SE	southeast
SPT	standard penetration test
SW	southwest
USGS	U.S. Geological Survey
W	west
WSW	west-southwest

END OF
REPORT

Appendix F

Noise Measurement Data and Noise Modeling Calculations

Representative Grading Equipment and Levels (LEQ)

Location	Distance to Nearest Receptor in feet	Combined Predicted Noise Level (L_{eq} dBA)
threshold	700	65.0
31450 De Portola Rd.	180	76.8
Madera Vista	150	78.4
31630 Heather Way	180	76.8
30955 De Portola Rd.	220	75.1

Equipment	Reference Emission Noise Levels (L_{max}) at 50 feet[1]	Usage Factor[1]
Excavator	85	0.4
Grader	85	0.4
Tractor	84	0.4
Flat Bed Truck	84	0.4
Front End Loader	80	0.4
Scraper	85	0.4

Ground Type	hard
Source Height	8
Receiver Height	5
Ground Factor[2]	0.00

Predicted Noise Level [3]	L_{eq} dBA at 50 feet[3]
Excavator	81.0
Grader	81.0
Tractor	80.0
Flat Bed Truck	80.0
Front End Loader	76.0
Scraper	81.0

Combined Predicted Noise Level (L_{eq} dBA at 50 feet)
87.9

Sources:

[1] Obtained from the FHWA Roadway Construction Noise Model, January 2006. Table 1.

[2] Based on Figure 6-5 from the Federal Transit Noise and Vibration Impact Assessment, 2006 (pg 6-23).

[3] Based on the following from the Federal Transit Noise and Vibration Impact Assessment, 2006 (pg 12-3).

$L_{eq}(equip) = E.L.+10*\log(U.F.) - 20*\log(D/50) - 10*G*\log(D/50)$

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects (FTA 2006: pg 6-23); and

D = Distance from source to receiver.

Representative Grading Equipment and Levels (LMAX)

Location	Distance to Nearest Receptor in feet	Combined Predicted Noise Level (L_{eq} dBA)
threshold	1,107	65.0
31450 De Portola Rd.	180	80.8
Madera Vista	150	82.4
31630 Heather Way	180	80.8
30955 De Portola Rd.	220	79.0

Equipment	Reference Emission Noise Levels (L_{max}) at 50 feet[1]	Usage Factor[1]
Excavator	85	1
Grader	85	1
Tractor	84	1
Flat Bed Truck	84	1
Front End Loader	80	1
Scraper	85	1

Ground Type	Hard
Source Height	8
Receiver Height	5
Ground Factor[2]	0.00

Predicted Noise Level [3]	L_{eq} dBA at 50 feet[3]
Excavator	85.0
Grader	85.0
Tractor	84.0
Flat Bed Truck	84.0
Front End Loader	80.0
Scraper	85.0

Combined Predicted Noise Level (L_{eq} dBA at 50 feet)
91.9

Sources:

[1] Obtained from the FHWA Roadway Construction Noise Model, January 2006. Table 1.

[2] Based on Figure 6-5 from the Federal Transit Noise and Vibration Impact Assessment, 2006 (pg 6-23).

[3] Based on the following from the Federal Transit Noise and Vibration Impact Assessment, 2006 (pg 12-3).

L_{eq}(equip) = E.L.+10*log (U.F.) - 20*log (D/50) - 10*G*log (D/50)

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects (FTA 2006: pg 6-23); and

D = Distance from source to receiver.

Representative Construction Equipment and Levels (LEQ)

Location	Distance to Nearest Receptor in feet	Combined Predicted Noise Level (L_{eq} dBA)
threshold	842	65.0
31450 De Portola Rd.	180	78.4
Madera Vista	150	80.0
31630 Heather Way	180	78.4
30955 De Portola Rd.	220	76.7

Equipment	Reference Emission Noise Levels (L_{max}) at 50 feet[1]	Usage Factor[1]
Compactor (ground)	80	0.4
Generator	82	0.4
Crane	85	0.4
Dump Truck	84	0.4
Front End Loader	80	0.4
Man Lift	85	0.4
Concrete Saw	90	0.4

Ground Type	hard
Source Height	8
Receiver Height	5
Ground Factor[2]	0.00

Predicted Noise Level [3]	L_{eq} dBA at 50 feet[3]
Compactor (ground)	76.0
Generator	78.0
Crane	81.0
Dump Truck	80.0
Front End Loader	76.0
Man Lift	81.0
Concrete Saw	86.0

Combined Predicted Noise Level (L_{eq} dBA at 50 feet)
89.5

Sources:

[1] Obtained from the FHWA Roadway Construction Noise Model, January 2006. Table 1.

[2] Based on Figure 6-5 from the Federal Transit Noise and Vibration Impact Assessment, 2006 (pg 6-23).

[3] Based on the following from the Federal Transit Noise and Vibration Impact Assessment, 2006 (pg 12-3).

$L_{eq}(equip) = E.L.+10*\log(U.F.) - 20*\log(D/50) - 10*G*\log(D/50)$

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects (FTA 2006: pg 6-23); and

D = Distance from source to receiver.

Representative Construction Equipment and Levels (LMAX)

Location	Distance to Nearest Receptor in feet	Combined Predicted Noise Level (L_{eq} dBA)
threshold	1,331	65.0
31450 De Portola Rd.	180	82.4
Madera Vista	150	84.0
31630 Heather Way	180	82.4
30955 De Portola Rd.	220	80.6

Equipment	Reference Emission Noise Levels (L_{max}) at 50 feet[1]	Usage Factor[1]
Compactor (ground)	80	1
Generator	82	1
Crane	85	1
Dump Truck	84	1
Front End Loader	80	1
Man Lift	85	1
Concrete Saw	90	1

Ground Type	hard
Source Height	8
Receiver Height	5
Ground Factor[2]	0.00

Predicted Noise Level [3]	L_{eq} dBA at 50 feet[3]
Compactor (ground)	80.0
Generator	82.0
Crane	85.0
Dump Truck	84.0
Front End Loader	80.0
Man Lift	85.0
Concrete Saw	90.0

Combined Predicted Noise Level (L_{eq} dBA at 50 feet)
93.5

Sources:

[1] Obtained from the FHWA Roadway Construction Noise Model, January 2006. Table 1.

[2] Based on Figure 6-5 from the Federal Transit Noise and Vibration Impact Assessment, 2006 (pg 6-23).

[3] Based on the following from the Federal Transit Noise and Vibration Impact Assessment, 2006 (pg 12-3).

L_{eq}(equip) = E.L.+10*log (U.F.) - 20*log (D/50) - 10*G*log (D/50)

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects (FTA 2006: pg 6-23); and

D = Distance from source to receiver.

Representative Paving Equipment and Levels (LEQ)

Location	Distance to Nearest Receptor in feet	Combined Predicted Noise Level (L_{eq} dBA)
threshold	679	65.0
31450 De Portola Rd.	180	76.5
Madera Vista	150	78.1
31630 Heather Way	180	76.5
30955 De Portola Rd.	220	74.8

Equipment	Reference Emission Noise Levels (L_{max}) at 50 feet[1]	Usage Factor[1]
Paver	85	0.4
Roller	85	0.4
Concrete Mixer Truck	85	0.4
Front End Loader	80	0.4
Flat Bed Truck	84	0.4
Concrete Pump Truck	82	0.4

Ground Type	hard
Source Height	8
Receiver Height	5
Ground Factor[2]	0.00

Predicted Noise Level [3]	L_{eq} dBA at 50 feet[3]
Paver	81.0
Roller	81.0
Concrete Mixer Truck	81.0
Front End Loader	76.0
Flat Bed Truck	80.0
Concrete Pump Truck	78.0

Combined Predicted Noise Level (L_{eq} dBA at 50 feet)
87.7

Sources:

[1] Obtained from the FHWA Roadway Construction Noise Model, January 2006. Table 1.

[2] Based on Figure 6-5 from the Federal Transit Noise and Vibration Impact Assessment, 2006 (pg 6-23).

[3] Based on the following from the Federal Transit Noise and Vibration Impact Assessment, 2006 (pg 12-3).

$L_{eq}(equip) = E.L.+10*\log(U.F.) - 20*\log(D/50) - 10*G*\log(D/50)$

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects (FTA 2006: pg 6-23); and

D = Distance from source to receiver.

Representative Paving Equipment and Levels (LMAX)

Location	Distance to Nearest Receptor in feet	Combined Predicted Noise Level (L_{eq} dBA)
threshold	1,074	65.0
31450 De Portola Rd.	180	80.5
Madera Vista	150	82.1
31630 Heather Way	180	80.5
30955 De Portola Rd.	220	78.8

Equipment	Reference Emission Noise Levels (L_{max}) at 50 feet[1]	Usage Factor[1]
Paver	85	1
Roller	85	1
Concrete Mixer Truck	85	1
Front End Loader	80	1
Flat Bed Truck	84	1
Concrete Pump Truck	82	1

Ground Type	hard
Source Height	8
Receiver Height	5
Ground Factor[2]	0.00

Predicted Noise Level [3]	L_{eq} dBA at 50 feet[3]
Paver	85.0
Roller	85.0
Concrete Mixer Truck	85.0
Front End Loader	80.0
Flat Bed Truck	84.0
Concrete Pump Truck	82.0

Combined Predicted Noise Level (L_{eq} dBA at 50 feet)
91.6

Sources:

[1] Obtained from the FHWA Roadway Construction Noise Model, January 2006. Table 1.

[2] Based on Figure 6-5 from the Federal Transit Noise and Vibration Impact Assessment, 2006 (pg 6-23).

[3] Based on the following from the Federal Transit Noise and Vibration Impact Assessment, 2006 (pg 12-3).

$L_{eq}(equip) = E.L.+10*\log(U.F.) - 20*\log(D/50) - 10*G*\log(D/50)$

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects (FTA 2006: pg 6-23); and

D = Distance from source to receiver.

Existing Noise Combined with Construction Noise for 31450 De Portola Road

Hourly Leq Noise Level by Noise Source	Existing Measured Noise Levels	Construction Noise Levels[1]	Combined Hourly Leq
Hour of Day			
0:00	43.4		43.4
1:00	43.3		43.3
2:00	43.4		43.4
3:00	44.7		44.7
4:00	48.6		48.6
5:00	55.3		55.3
6:00	51.8		51.8
7:00	51.4	78.4	78.4
8:00	50.9	78.4	78.4
9:00	50.1	78.4	78.4
10:00	49.2	78.4	78.4
11:00	54.3	78.4	78.4
12:00	51.8	78.4	78.4
13:00	49.7	78.4	78.4
14:00	68.7	78.4	78.8
15:00	52.5	78.4	78.4
16:00	54.3	78.4	78.4
17:00	54.2	78.4	78.4
18:00	68.8	78.4	78.9
19:00	61.8	78.4	78.5
20:00	48.6		48.6
21:00	47.2		47.2
22:00	45.9		45.9
23:00	44.0		44.0

Notes

[1] Construction noise levels only implemented during allowed hours from municipal code which is 7:00 am to 6:30 pm
Existing Noise level values are shown in Appendix X, Long-term Noise Measurement Summary worksheet

Parking Lot CNEL Calculation

KEY: Orange cells are for input.
Grey cells are intermediate calculations performed by the model.
Green cells are data to present in a written analysis (output).

Measurement Site: 31450 De Portola Road
Measurement Date: May 3rd 2022
Project Name: Temecula Valley Hospital Master Plan

Hour of Day (military time)	Sound Level Leq (dBA)	Sound Power =10*Log(dBA/10)	Computation of CNEL: Period of 24-Hour Day (1=included, 0=not) Day	Evening	Night	Sound Power Breakdown by Period of Day: Day	Evening	Night
0:00	43.4	21,879	0	0	1	0	0	21,879
1:00	43.3	21,381	0	0	1	0	0	21,381
2:00	43.4	21,879	0	0	1	0	0	21,879
3:00	44.7	29,513	0	0	1	0	0	29,513
4:00	48.6	72,445	0	0	1	0	0	72,445
5:00	55.3	338,845	0	0	1	0	0	338,845
6:00	51.8	151,357	0	0	1	0	0	151,357
7:00	78.4	69,321,136	1	0	0	69,321,136	0	0
8:00	78.4	69,306,124	1	0	0	69,306,124	0	0
9:00	78.4	69,285,426	1	0	0	69,285,426	0	0
10:00	78.4	69,266,273	1	0	0	69,266,273	0	0
11:00	78.4	69,452,251	1	0	0	69,452,251	0	0
12:00	78.4	69,334,453	1	0	0	69,334,453	0	0
13:00	78.4	69,276,423	1	0	0	69,276,423	0	0
14:00	78.8	76,596,200	1	0	0	76,596,200	0	0
15:00	78.4	69,360,925	1	0	0	69,360,925	0	0
16:00	78.4	69,452,251	1	0	0	69,452,251	0	0
17:00	78.4	69,446,124	1	0	0	69,446,124	0	0
18:00	78.9	76,768,873	1	0	0	76,768,873	0	0
19:00	78.5	70,696,658	0	1	0	0	70,696,658	0
20:00	48.6	72,445	0	1	0	0	72,445	0
21:00	47.2	52,482	0	1	0	0	52,482	0
22:00	45.9	38,906	0	0	1	0	0	38,906
23:00	44.0	25,120	0	0	1	0	0	25,120
Sum of Sound Power during Period wo/penalty						846,866,458	70,821,585	721,323
Log Factor for CNEL Penalty (i.e., 10*log(x))						1	3	10
Sound Power during Period with penalty						846,866,458	212,464,754	7,213,232

Total Daily Sound Power, with penalties	1,066,544,444
Hours per Day	24
Average Hourly Sound Power, with penalties	44,439,352
CNEL	76.5

Ldn computation on next page.

Computation of Ldn

Period of 24-Hour Day (1=included, 0=not)		Sound Power Breakdown by Period of Day	
Day	Night	Day	Night
0	1	0	21,879
0	1	0	21,381
0	1	0	21,879
0	1	0	29,513
0	1	0	72,445
0	1	0	338,845
0	1	0	151,357
1	0	69,321,136	0
1	0	69,306,124	0
1	0	69,285,426	0
1	0	69,266,273	0
1	0	69,452,251	0
1	0	69,334,453	0
1	0	69,276,423	0
1	0	76,596,200	0
1	0	69,360,925	0
1	0	69,452,251	0
1	0	69,446,124	0
1	0	76,768,873	0
1	0	70,696,658	0
1	0	72,445	0
1	0	52,482	0
0	1	0	38,906
0	1	0	25,120

Sum of Sound Power during Period wo/penalty	917,688,042	721,323
Log Factor for Penalty (i.e., 10*log(x))	1	10
Sound Power during Period with penalty	917,688,042	7,213,232

Total Daily Sound Power, with penalties	924,901,274
Hours per Day	24
Average Hourly Sound Power, with penalties	38,537,553
Ldn	75.9

Notes:

Computation of the CNEL based on 1-hour Leq measurements for each hour of a day are based on equation 2-27 on pg. 2-57 of Caltrans 2009.

Computation of the Ldn based on 1-hour Leq measurements for each hour of a day are based on equation 2-26 on pg. 2-56 of Caltrans 2009.

Log factors for the Ldn and CNEL penalties are provided in Table 2-12 on pg. 2-52 of Caltrans 2009.

Source:

California Deaprtment of Transportation (Caltrans), Divisiong of Environmental Analysis. 2009 (November). *2009 Technical Noise Supplement* . Sacramento, CA. Available: <http://www.dot.ca.gov/hq/env/noise/>. Accessed September 24, 2010.

Existing Noise Combined with Construction Noise for Madera Vista Homes

Hourly Leq Noise Level by Noise Source	Existing Measured Noise Levels	Construction Noise Levels[1]	Combined Hourly Leq
Hour of Day			
0:00	42.1		42.1
1:00	42.7		42.7
2:00	43.4		43.4
3:00	42.4		42.4
4:00	45.7		45.7
5:00	49.1		49.1
6:00	49.8		49.8
7:00	49.4	80.0	80.0
8:00	50.9	80.0	80.0
9:00	50.3	80.0	80.0
10:00	49.3	80.0	80.0
11:00	59.6	80.0	80.0
12:00	54.6	80.0	80.0
13:00	48.4	80.0	80.0
14:00	56.9	80.0	80.0
15:00	50.6	80.0	80.0
16:00	51.5	80.0	80.0
17:00	53.6	80.0	80.0
18:00	59.8	80.0	80.0
19:00	53.6	80.0	80.0
20:00	51.5		51.5
21:00	47.7		47.7
22:00	46.3		46.3
23:00	44.0		44.0

Notes

[1] Construction noise levels only implemented during allowed hours from municipal code which is 7:00 am to 6:30 pm
Existing Noise level values are shown in Appendix X, Long-term Noise Measurement Summary worksheet

Parking Lot CNEL Calculation

KEY: Orange cells are for input.
Grey cells are intermediate calculations performed by the model.
Green cells are data to present in a written analysis (output).

Measurement Site:	Madera Vista Homes
Measurement Date:	May 3rd 2022
Project Name:	Temecula Valley Hospital Master Plan

Computation of CNEL

Hour of Day (military time)	Sound Level Leq (dBA)	Sound Power =10*Log(dBA/10)	Period of 24-Hour Day (1=included, 0=not)			Sound Power Breakdown by Period of Day		
			Day	Evening	Night	Day	Evening	Night
0:00	42.1	16,219	0	0	1	0	0	16,219
1:00	42.7	18,622	0	0	1	0	0	18,622
2:00	43.4	21,879	0	0	1	0	0	21,879
3:00	42.4	17,379	0	0	1	0	0	17,379
4:00	45.7	37,155	0	0	1	0	0	37,155
5:00	49.1	81,284	0	0	1	0	0	81,284
6:00	49.8	95,500	0	0	1	0	0	95,500
7:00	80.0	100,087,096	1	0	0	100,087,096	0	0
8:00	80.0	100,123,027	1	0	0	100,123,027	0	0
9:00	80.0	100,107,152	1	0	0	100,107,152	0	0
10:00	80.0	100,085,114	1	0	0	100,085,114	0	0
11:00	80.0	100,912,011	1	0	0	100,912,011	0	0
12:00	80.0	100,288,403	1	0	0	100,288,403	0	0
13:00	80.0	100,069,183	1	0	0	100,069,183	0	0
14:00	80.0	100,489,779	1	0	0	100,489,779	0	0
15:00	80.0	100,114,815	1	0	0	100,114,815	0	0
16:00	80.0	100,141,254	1	0	0	100,141,254	0	0
17:00	80.0	100,229,087	1	0	0	100,229,087	0	0
18:00	80.0	100,954,993	1	0	0	100,954,993	0	0
19:00	80.0	100,229,087	0	1	0	0	100,229,087	0
20:00	51.5	141,255	0	1	0	0	141,255	0
21:00	47.7	58,885	0	1	0	0	58,885	0
22:00	46.3	42,659	0	0	1	0	0	42,659
23:00	44.0	25,120	0	0	1	0	0	25,120

Sum of Sound Power during Period wo/penalty	1,203,601,913	100,429,227	355,816
Log Factor for CNEL Penalty (i.e., 10*log(x))	1	3	10
Sound Power during Period with penalty	1,203,601,913	301,287,681	3,558,162

Total Daily Sound Power, with penalties	1,508,447,756
Hours per Day	24
Average Hourly Sound Power, with penalties	62,851,990
CNEL	78.0

Ldn computation on next page.

Computation of Ldn

Period of 24-Hour Day (1=included, 0=not)		Sound Power Breakdown by Period of Day	
Day	Night	Day	Night
0	1	0	16,219
0	1	0	18,622
0	1	0	21,879
0	1	0	17,379
0	1	0	37,155
0	1	0	81,284
0	1	0	95,500
1	0	100,087,096	0
1	0	100,123,027	0
1	0	100,107,152	0
1	0	100,085,114	0
1	0	100,912,011	0
1	0	100,288,403	0
1	0	100,069,183	0
1	0	100,489,779	0
1	0	100,114,815	0
1	0	100,141,254	0
1	0	100,229,087	0
1	0	100,954,993	0
1	0	100,229,087	0
1	0	141,255	0
1	0	58,885	0
0	1	0	42,659
0	1	0	25,120

Sum of Sound Power during Period wo/penalty	1,304,031,140	355,816
Log Factor for Penalty (i.e., 10*log(x))	1	10
Sound Power during Period with penalty	1,304,031,140	3,558,162

Total Daily Sound Power, with penalties	1,307,589,303
Hours per Day	24
Average Hourly Sound Power, with penalties	54,482,888
Ldn	77.4

Notes:

Computation of the CNEL based on 1-hour Leq measurements for each hour of a day are based on equation 2-27 on pg. 2-57 of Caltrans 2009.

Computation of the Ldn based on 1-hour Leq measurements for each hour of a day are based on equation 2-26 on pg. 2-56 of Caltrans 2009.

Log factors for the Ldn and CNEL penalties are provided in Table 2-12 on pg. 2-52 of Caltrans 2009.

Source:

California Deaprtment of Transportation (Caltrans), Divisiong of Environmental Analysis. 2009 (November). *2009 Technical Noise Supplement* . Sacramento, CA. Available: <http://www.dot.ca.gov/hq/env/noise/>. Accessed September 24, 2010.

Existing Noise Combined with Construction Noise for 31630 Heather Way

Hourly Leq Noise Level by Noise Source	Existing Measured Noise Levels	Construction Noise Levels[1]	Combined Hourly Leq
Hour of Day			
0:00	65.3		65.3
1:00	64.1		64.1
2:00	63.1		63.1
3:00	64.3		64.3
4:00	68.0		68.0
5:00	69.5		69.5
6:00	71.6		71.6
7:00	72.0	78.4	79.3
8:00	72.9	78.4	79.5
9:00	72.6	78.4	79.4
10:00	72.5	78.4	79.4
11:00	72.4	78.4	79.4
12:00	72.3	78.4	79.4
13:00	72.1	78.4	79.3
14:00	73.0	78.4	79.5
15:00	72.1	78.4	79.3
16:00	72.9	78.4	79.5
17:00	72.7	78.4	79.4
18:00	73.1	78.4	79.5
19:00	72.6	78.4	79.4
20:00	71.6		71.6
21:00	70.6		70.6
22:00	69.6		69.6
23:00	67.3		67.3

Notes

[1] Construction noise levels only implemented during allowed hours from municipal code which is 7:00 am to 6:30 pm
Existing Noise level values are shown in Appendix X, Long-term Noise Measurement Summary worksheet

Parking Lot CNEL Calculation

KEY: Orange cells are for input.
Grey cells are intermediate calculations performed by the model.
Green cells are data to present in a written analysis (output).

Measurement Site:	31630 Heather Way
Measurement Date:	May 3rd 2022
Project Name:	Temecula Valley Hospital Master Plan

Computation of CNEL

Hour of Day (military time)	Sound Level Leq (dBA)	Sound Power =10*Log(dBA/10)	Period of 24-Hour Day (1=included, 0=not)			Sound Power Breakdown by Period of Day		
			Day	Evening	Night	Day	Evening	Night
0:00	65.3	3,388,443	0	0	1	0	0	3,388,443
1:00	64.1	2,570,397	0	0	1	0	0	2,570,397
2:00	63.1	2,041,739	0	0	1	0	0	2,041,739
3:00	64.3	2,691,536	0	0	1	0	0	2,691,536
4:00	68.0	6,309,574	0	0	1	0	0	6,309,574
5:00	69.5	8,912,510	0	0	1	0	0	8,912,510
6:00	71.6	14,454,399	0	0	1	0	0	14,454,399
7:00	79.3	85,032,029	1	0	0	85,032,029	0	0
8:00	79.5	88,681,543	1	0	0	88,681,543	0	0
9:00	79.4	87,380,106	1	0	0	87,380,106	0	0
10:00	79.4	86,965,891	1	0	0	86,965,891	0	0
11:00	79.4	86,561,105	1	0	0	86,561,105	0	0
12:00	79.4	86,165,534	1	0	0	86,165,534	0	0
13:00	79.3	85,401,198	1	0	0	85,401,198	0	0
14:00	79.5	89,135,720	1	0	0	89,135,720	0	0
15:00	79.3	85,401,198	1	0	0	85,401,198	0	0
16:00	79.5	88,681,543	1	0	0	88,681,543	0	0
17:00	79.4	87,803,968	1	0	0	87,803,968	0	0
18:00	79.5	89,600,477	1	0	0	89,600,477	0	0
19:00	79.4	87,380,106	0	1	0	0	87,380,106	0
20:00	71.6	14,454,399	0	1	0	0	14,454,399	0
21:00	70.6	11,481,537	0	1	0	0	11,481,537	0
22:00	69.6	9,120,109	0	0	1	0	0	9,120,109
23:00	67.3	5,370,319	0	0	1	0	0	5,370,319
Sum of Sound Power during Period wo/penalty						1,046,810,312	113,316,042	54,859,026
Log Factor for CNEL Penalty (i.e., 10*log(x))						1	3	10
Sound Power during Period with penalty						1,046,810,312	339,948,125	548,590,260

Total Daily Sound Power, with penalties	1,935,348,697
Hours per Day	24
Average Hourly Sound Power, with penalties	80,639,529
CNEL	79.1

Computation of Ldn

Ldn computation on next page.

Period of 24-Hour Day (1=included, 0=not)		Sound Power Breakdown by Period of Day	
Day	Night	Day	Night
0	1	0	3,388,443
0	1	0	2,570,397
0	1	0	2,041,739
0	1	0	2,691,536
0	1	0	6,309,574
0	1	0	8,912,510
0	1	0	14,454,399
1	0	85,032,029	0
1	0	88,681,543	0
1	0	87,380,106	0
1	0	86,965,891	0
1	0	86,561,105	0
1	0	86,165,534	0
1	0	85,401,198	0
1	0	89,135,720	0
1	0	85,401,198	0
1	0	88,681,543	0
1	0	87,803,968	0
1	0	89,600,477	0
1	0	87,380,106	0
1	0	14,454,399	0
1	0	11,481,537	0
0	1	0	9,120,109
0	1	0	5,370,319

Sum of Sound Power during Period wo/penalty	1,160,126,354	54,859,026
Log Factor for Penalty (i.e., 10*log(x))	1	10
Sound Power during Period with penalty	1,160,126,354	548,590,260

Total Daily Sound Power, with penalties	1,708,716,614
Hours per Day	24
Average Hourly Sound Power, with penalties	71,196,526
Ldn	78.5

Notes:

Computation of the CNEL based on 1-hour Leq measurements for each hour of a day are based on equation 2-27 on pg. 2-57 of Caltrans 2009.

Computation of the Ldn based on 1-hour Leq measurements for each hour of a day are based on equation 2-26 on pg. 2-56 of Caltrans 2009.

Log factors for the Ldn and CNEL penalties are provided in Table 2-12 on pg. 2-52 of Caltrans 2009.

Source:

California Deaprtment of Transportation (Caltrans), Divisiong of Environmental Analysis. 2009 (November). *2009 Technical Noise Supplement* . Sacramento, CA. Available: <http://www.dot.ca.gov/hq/env/noise/>. Accessed September 24, 2010.

Existing Noise Combined with Construction Noise for 30955 De Portola Road

Hourly Leq Noise Level by Noise Source	Existing Measured Noise Levels	Construction Noise Levels[1]	Combined Hourly Leq
Hour of Day			
0:00	43.4		43.4
1:00	43.3		43.3
2:00	43.4		43.4
3:00	44.7		44.7
4:00	48.6		48.6
5:00	55.3		55.3
6:00	51.8		51.8
7:00	51.4	76.7	76.7
8:00	50.9	76.7	76.7
9:00	50.1	76.7	76.7
10:00	49.2	76.7	76.7
11:00	54.3	76.7	76.7
12:00	51.8	76.7	76.7
13:00	49.7	76.7	76.7
14:00	68.7	76.7	77.3
15:00	52.5	76.7	76.7
16:00	54.3	76.7	76.7
17:00	54.2	76.7	76.7
18:00	68.8	76.7	77.4
19:00	61.8	76.7	76.8
20:00	48.6		48.6
21:00	47.2		47.2
22:00	45.9		45.9
23:00	44.0		44.0

Notes

[1] Construction noise levels only implemented during allowed hours from municipal code which is 7:00 am to 6:30 pm
Existing Noise level values are shown in Appendix X, Long-term Noise Measurement Summary worksheet

Parking Lot CNEL Calculation

KEY: Orange cells are for input.
Grey cells are intermediate calculations performed by the model.
Green cells are data to present in a written analysis (output).

Measurement Site: 30955 De Portola Road
Measurement Date: May 3rd 2022
Project Name: Temecula Valley Hospital Master Plan

Computation of CNEL

Hour of Day (military time)	Sound Level Leq (dBA)	Sound Power =10*Log(dBA/10)	Period of 24-Hour Day (1=included, 0=not)			Sound Power Breakdown by Period of Day		
			Day	Evening	Night	Day	Evening	Night
0:00	43.4	21,879	0	0	1	0	0	21,879
1:00	43.3	21,381	0	0	1	0	0	21,381
2:00	43.4	21,879	0	0	1	0	0	21,879
3:00	44.7	29,513	0	0	1	0	0	29,513
4:00	48.6	72,445	0	0	1	0	0	72,445
5:00	55.3	338,845	0	0	1	0	0	338,845
6:00	51.8	151,357	0	0	1	0	0	151,357
7:00	76.7	46,911,553	1	0	0	46,911,553	0	0
8:00	76.7	46,896,541	1	0	0	46,896,541	0	0
9:00	76.7	46,875,843	1	0	0	46,875,843	0	0
10:00	76.7	46,856,691	1	0	0	46,856,691	0	0
11:00	76.7	47,042,668	1	0	0	47,042,668	0	0
12:00	76.7	46,924,870	1	0	0	46,924,870	0	0
13:00	76.7	46,866,840	1	0	0	46,866,840	0	0
14:00	77.3	54,186,617	1	0	0	54,186,617	0	0
15:00	76.7	46,951,342	1	0	0	46,951,342	0	0
16:00	76.7	47,042,668	1	0	0	47,042,668	0	0
17:00	76.7	47,036,541	1	0	0	47,036,541	0	0
18:00	77.4	54,359,290	1	0	0	54,359,290	0	0
19:00	76.8	48,287,075	0	1	0	0	48,287,075	0
20:00	48.6	72,445	0	1	0	0	72,445	0
21:00	47.2	52,482	0	1	0	0	52,482	0
22:00	45.9	38,906	0	0	1	0	0	38,906
23:00	44.0	25,120	0	0	1	0	0	25,120

Sum of Sound Power during Period wo/penalty	577,951,462	48,412,002	721,323
Log Factor for CNEL Penalty (i.e., 10*log(x))	1	3	10
Sound Power during Period with penalty	577,951,462	145,236,005	7,213,232

Total Daily Sound Power, with penalties	730,400,699
Hours per Day	24
Average Hourly Sound Power, with penalties	30,433,362
CNEL	74.8

Ldn computation on next page.

Computation of Ldn

Period of 24-Hour Day (1=included, 0=not)		Sound Power Breakdown by Period of Day	
Day	Night	Day	Night
0	1	0	21,879
0	1	0	21,381
0	1	0	21,879
0	1	0	29,513
0	1	0	72,445
0	1	0	338,845
0	1	0	151,357
1	0	46,911,553	0
1	0	46,896,541	0
1	0	46,875,843	0
1	0	46,856,691	0
1	0	47,042,668	0
1	0	46,924,870	0
1	0	46,866,840	0
1	0	54,186,617	0
1	0	46,951,342	0
1	0	47,042,668	0
1	0	47,036,541	0
1	0	54,359,290	0
1	0	48,287,075	0
1	0	72,445	0
1	0	52,482	0
0	1	0	38,906
0	1	0	25,120

Sum of Sound Power during Period wo/penalty	626,363,464	721,323
Log Factor for Penalty (i.e., 10*log(x))	1	10
Sound Power during Period with penalty	626,363,464	7,213,232

Total Daily Sound Power, with penalties	633,576,696
Hours per Day	24
Average Hourly Sound Power, with penalties	26,399,029
Ldn	74.2

Notes:

Computation of the CNEL based on 1-hour Leq measurements for each hour of a day are based on equation 2-27 on pg. 2-57 of Caltrans 2009.

Computation of the Ldn based on 1-hour Leq measurements for each hour of a day are based on equation 2-26 on pg. 2-56 of Caltrans 2009.

Log factors for the Ldn and CNEL penalties are provided in Table 2-12 on pg. 2-52 of Caltrans 2009.

Source:

California Deaprtment of Transportation (Caltrans), Divisiong of Environmental Analysis. 2009 (November). *2009 Technical Noise Supplement* . Sacramento, CA. Available: <http://www.dot.ca.gov/hq/env/noise/>. Accessed September 24, 2010.

Equipment Description	Acoustical Usage Factor (%)	Spec 721.560 Lmax @ 50ft (dBA slow)	Actual Measured Lmax @ 50ft (dBA slow)	No. of Actual Data Samples (count)	Spec 721.560 LmaxCalc	Spec 721.560 Leq	Distance	Actual Measured LmaxCalc	Actual Measured Leq
Auger Drill Rig	20	85	84	36	79.0	72.0	100	78.0	71.0
Backhoe	40	80	78	372	74.0	70.0	100	72.0	68.0
Bar Bender	20	80	na	0	74.0	67.0	100		
Blasting	na	94	na	0	88.0		100		
Boring Jack Power Unit	50	80	83	1	74.0	71.0	100	77.0	74.0
Chain Saw	20	85	84	46	79.0	72.0	100	78.0	71.0
Clam Shovel (dropping)	20	93	87	4	87.0	80.0	100	81.0	74.0
Compactor (ground)	20	80	83	57	74.0	67.0	100	77.0	70.0
Compressor (air)	40	80	78	18	74.0	70.0	100	72.0	68.0
Concrete Batch Plant	15	83	na	0	77.0	68.7	100		
Concrete Mixer Truck	40	85	79	40	79.0	75.0	100	73.0	69.0
Concrete Pump Truck	20	82	81	30	76.0	69.0	100	75.0	68.0
Concrete Saw	20	90	90	55	84.0	77.0	100	84.0	77.0
Crane	16	85	81	405	79.0	71.0	100	75.0	67.0
Dozer	40	85	82	55	79.0	75.0	100	76.0	72.0
Drill Rig Truck	20	84	79	22	78.0	71.0	100	73.0	66.0
Drum Mixer	50	80	80	1	74.0	71.0	100	74.0	71.0
Dump Truck	40	84	76	31	78.0	74.0	100	70.0	66.0
Excavator	40	85	81	170	79.0	75.0	100	75.0	71.0
Flat Bed Truck	40	84	74	4	78.0	74.0	100	68.0	64.0
Front End Loader	40	80	79	96	74.0	70.0	100	73.0	69.0
Generator	50	82	81	19	76.0	73.0	100	75.0	72.0
Generator (<25KVA, VMS s	50	70	73	74	64.0	61.0	100	67.0	64.0
Gradall	40	85	83	70	79.0	75.0	100	77.0	73.0
Grader	40	85	na	0	79.0	75.0	100		
Grapple (on Backhoe)	40	85	87	1	79.0	75.0	100	81.0	77.0
Horizontal Boring Hydr. Jac	25	80	82	6	74.0	68.0	100	76.0	70.0
Hydra Break Ram	10	90	na	0	84.0	74.0	100		
Impact Pile Driver	20	95	101	11	89.0	82.0	100	95.0	88.0
Jackhammer	20	85	89	133	79.0	72.0	100	83.0	76.0
Man Lift	20	85	75	23	79.0	72.0	100	69.0	62.0
Mounted Impact Hammer (	20	90	90	212	84.0	77.0	100	84.0	77.0
Pavement Scarafier	20	85	90	2	79.0	72.0	100	84.0	77.0
Paver	50	85	77	9	79.0	76.0	100	71.0	68.0
Pickup Truck	40	55	75	1	49.0	45.0	100	69.0	65.0
Pneumatic Tools	50	85	85	90	79.0	76.0	100	79.0	76.0
Pumps	50	77	81	17	71.0	68.0	100	75.0	72.0
Refrigerator Unit	100	82	73	3	76.0	76.0	100	67.0	67.0
Rivit Buster/chipping gun	20	85	79	19	79.0	72.0	100	73.0	66.0
Rock Drill	20	85	81	3	79.0	72.0	100	75.0	68.0
Roller	20	85	80	16	79.0	72.0	100	74.0	67.0
Sand Blasting (Single Nozzl	20	85	96	9	79.0	72.0	100	90.0	83.0
Scraper	40	85	84	12	79.0	75.0	100	78.0	74.0
Shears (on backhoe)	40	85	96	5	79.0	75.0	100	90.0	86.0
Slurry Plant	100	78	78	1	72.0	72.0	100	72.0	72.0
Slurry Trenching Machine	50	82	80	75	76.0	73.0	100	74.0	71.0
Soil Mix Drill Rig	50	80	na	0	74.0	71.0	100		
Tractor	40	84	na	0	78.0	74.0	100		
Vacuum Excavator (Vac-tru	40	85	85	149	79.0	75.0	100	79.0	75.0
Vacuum Street Sweeper	10	80	82	19	74.0	64.0	100	76.0	66.0
Ventilation Fan	100	85	79	13	79.0	79.0	100	73.0	73.0
Vibrating Hopper	50	85	87	1	79.0	76.0	100	81.0	78.0
Vibratory Concrete Mixer	20	80	80	1	74.0	67.0	100	74.0	67.0
Vibratory Pile Driver	20	95	101	44	89.0	82.0	100	95.0	88.0
Warning Horn	5	85	83	12	79.0	66.0	100	77.0	64.0
Welder / Torch	40	73	74	5	67.0	63.0	100	68.0	64.0

Source:
FHWA Roadway Construction Noise Model, January 2006. Table 9.1
U.S. Department of Transportation
CA/T Construction Spec. 721.560

Distance Propagation Calculations for Stationary Sources of Ground Vibration

KEY: Orange cells are for input.

Grey cells are intermediate calculations performed by the model.

Green cells are data to present in a written analysis (output).

STEP 1: Determine units in which to perform calculation.

— If vibration decibels (VdB), then use Table A and proceed to Steps 2A and 3A.

— If peak particle velocity (PPV), then use Table B and proceed to Steps 2B and 3B.

STEP 2A: Identify the vibration source and enter the reference vibration level (VdB) and distance.

STEP 3A: Select the distance to the receiver.

Table A. Propagation of vibration decibels (VdB) with distance

Noise Source/ID	Reference Noise Level			Attenuated Noise Level at Receptor		
31450 De Portola Rd.	vibration level (VdB)	@	distance (ft)	vibration level (VdB)	@	distance (ft)
Vibratory Roller	94	@	25	68.3	@	180
Loaded Trucks	86	@	25	60.3	@	180
Jackhammer	79	@	25	53.3	@	180
			25			

STEP 2B: Identify the vibration source and enter the reference peak particle velocity (PPV) and distance.

STEP 3B: Select the distance to the receiver.

Table B. Propagation of peak particle velocity (PPV) with distance

Noise Source/ID	Reference Noise Level			Attenuated Noise Level at Receptor		
31450 De Portola Rd.	vibration level (PPV)	@	distance (ft)	vibration level (PPV)	@	distance (ft)
Vibratory Roller	0.210	@	25	0.011	@	180
Loaded Trucks	0.076	@	25	0.004	@	180
Jackhammer	0.035	@	25	0.002		180

Notes:

Computation of propagated vibration levels is based on the equations presented on pg. 12-11 of FTA 2006. Estimates of attenuated vibration levels do not account for reductions from intervening underground barriers or other underground structures of any type, or changes in soil type.

Sources:

Federal Transit Association (FTA). 2006 (May). Transit Noise and Vibration Impact Assessment. FTA-VA-90-1003-06. Washington, D.C. Available: <http://www.fta.dot.gov/documents/FTA_Noise_and_Vibration_Manual.pdf>. Accessed: September 24, 2010.

Distance Propagation Calculations for Stationary Sources of Ground Vibration

KEY: Orange cells are for input.

Grey cells are intermediate calculations performed by the model.

Green cells are data to present in a written analysis (output).

STEP 1: Determine units in which to perform calculation.

— If vibration decibels (VdB), then use Table A and proceed to Steps 2A and 3A.

— If peak particle velocity (PPV), then use Table B and proceed to Steps 2B and 3B.

STEP 2A: Identify the vibration source and enter the reference vibration level (VdB) and distance.

STEP 3A: Select the distance to the receiver.

Table A. Propagation of vibration decibels (VdB) with distance

Noise Source/ID	Reference Noise Level			Attenuated Noise Level at Receptor		
Madera Vista	vibration level (VdB)	@	distance (ft)	vibration level (VdB)	@	distance (ft)
Vibratory Roller	94	@	25	70.7	@	150
Loaded Trucks	86	@	25	62.7	@	150
Jackhammer	79	@	25	55.7	@	150

STEP 2B: Identify the vibration source and enter the reference peak particle velocity (PPV) and distance.

STEP 3B: Select the distance to the receiver.

Table B. Propagation of peak particle velocity (PPV) with distance

Noise Source/ID	Reference Noise Level			Attenuated Noise Level at Receptor		
Madera Vista	vibration level (PPV)	@	distance (ft)	vibration level (PPV)	@	distance (ft)
Vibratory Roller	0.210	@	25	0.014	@	150
Loaded Trucks	0.076	@	25	0.005	@	150
Jackhammer	0.035	@	25	0.002		150

Notes:

Computation of propagated vibration levels is based on the equations presented on pg. 12-11 of FTA 2006. Estimates of attenuated vibration levels do not account for reductions from intervening underground barriers or other underground structures of any type, or changes in soil type.

Sources:

Federal Transit Association (FTA). 2006 (May). Transit Noise and Vibration Impact Assessment. FTA-VA-90-1003-06. Washington, D.C. Available: <http://www.fta.dot.gov/documents/FTA_Noise_and_Vibration_Manual.pdf>. Accessed: September 24, 2010.

Distance Propagation Calculations for Stationary Sources of Ground Vibration

KEY: Orange cells are for input.

Grey cells are intermediate calculations performed by the model.

Green cells are data to present in a written analysis (output).

STEP 1: Determine units in which to perform calculation.

— If vibration decibels (VdB), then use Table A and proceed to Steps 2A and 3A.

— If peak particle velocity (PPV), then use Table B and proceed to Steps 2B and 3B.

STEP 2A: Identify the vibration source and enter the reference vibration level (VdB) and distance.

STEP 3A: Select the distance to the receiver.

Table A. Propagation of vibration decibels (VdB) with distance

Noise Source/ID	Reference Noise Level			Attenuated Noise Level at Receptor		
31630 Heather Way	vibration level (VdB)	@	distance (ft)	vibration level (VdB)	@	distance (ft)
Vibratory Roller	94	@	25	68.3	@	180
Loaded Trucks	86	@	25	60.3	@	180
Jackhammer	79	@	25	53.3	@	180

STEP 2B: Identify the vibration source and enter the reference peak particle velocity (PPV) and distance.

STEP 3B: Select the distance to the receiver.

Table B. Propagation of peak particle velocity (PPV) with distance

Noise Source/ID	Reference Noise Level			Attenuated Noise Level at Receptor		
31630 Heather Way	vibration level (PPV)	@	distance (ft)	vibration level (PPV)	@	distance (ft)
Vibratory Roller	0.210	@	25	0.011	@	180
Loaded Trucks	0.076	@	25	0.004	@	180
Jackhammer	0.035	@	25	0.002		180

Notes:

Computation of propagated vibration levels is based on the equations presented on pg. 12-11 of FTA 2006. Estimates of attenuated vibration levels do not account for reductions from intervening underground barriers or other underground structures of any type, or changes in soil type.

Sources:

Federal Transit Association (FTA). 2006 (May). Transit Noise and Vibration Impact Assessment. FTA-VA-90-1003-06. Washington, D.C. Available: <http://www.fta.dot.gov/documents/FTA_Noise_and_Vibration_Manual.pdf>. Accessed: September 24, 2010.

Distance Propagation Calculations for Stationary Sources of Ground Vibration

KEY: Orange cells are for input.

Grey cells are intermediate calculations performed by the model.

Green cells are data to present in a written analysis (output).

STEP 1: Determine units in which to perform calculation.

— If vibration decibels (VdB), then use Table A and proceed to Steps 2A and 3A.

— If peak particle velocity (PPV), then use Table B and proceed to Steps 2B and 3B.

STEP 2A: Identify the vibration source and enter the reference vibration level (VdB) and distance.

STEP 3A: Select the distance to the receiver.

Table A. Propagation of vibration decibels (VdB) with distance

Noise Source/ID	Reference Noise Level			Attenuated Noise Level at Receptor		
30955 De Portola Rd.	vibration level (VdB)	@	distance (ft)	vibration level (VdB)	@	distance (ft)
Vibratory Roller	94	@	25	65.7	@	220
Loaded Trucks	86	@	25	57.7	@	220
Jackhammer	79	@	25	50.7	@	220

STEP 2B: Identify the vibration source and enter the reference peak particle velocity (PPV) and distance.

STEP 3B: Select the distance to the receiver.

Table B. Propagation of peak particle velocity (PPV) with distance

Noise Source/ID	Reference Noise Level			Attenuated Noise Level at Receptor		
30955 De Portola Rd.	vibration level (PPV)	@	distance (ft)	vibration level (PPV)	@	distance (ft)
Vibratory Roller	0.210	@	25	0.008	@	220
Loaded Trucks	0.076	@	25	0.003	@	220
Jackhammer	0.035	@	25	0.001		220

Notes:

Computation of propagated vibration levels is based on the equations presented on pg. 12-11 of FTA 2006. Estimates of attenuated vibration levels do not account for reductions from intervening underground barriers or other underground structures of any type, or changes in soil type.

Sources:

Federal Transit Association (FTA). 2006 (May). Transit Noise and Vibration Impact Assessment. FTA-VA-90-1003-06. Washington, D.C. Available: <http://www.fta.dot.gov/documents/FTA_Noise_and_Vibration_Manual.pdf>. Accessed: September 24, 2010.

Long-Term Noise Measurement Summary

KEY: Orange cells are for input.
Grey cells are intermediate calculations performed by the model.
Green cells are data to present in a written analysis (output).

Measurement Site: Site 1
Measurement Date: May/03/2022
Project Name: Temecula Valley Hospital Master Plan Update

Hour of Day (military time)	Sound Level Leq (dBA)	Sound Power =10*Log(dBA/10)	Computation of CNEL: Period of 24-Hour Day (1=included, 0=not) Day	Evening	Night	Sound Power Breakdown by Period of Day: Day	Evening	Night
0:00	57.4	549,541	0	0	1	0	0	549,541
1:00	55.9	389,045	0	0	1	0	0	389,045
2:00	56.7	467,735	0	0	1	0	0	467,735
3:00	60.7	1,174,898	0	0	1	0	0	1,174,898
4:00	66.3	4,265,795	0	0	1	0	0	4,265,795
5:00	69.6	9,120,108	0	0	1	0	0	9,120,108
6:00	71.2	13,182,567	0	0	1	0	0	13,182,567
7:00	72.5	17,782,794	1	0	0	17,782,794	0	0
8:00	72.3	16,982,437	1	0	0	16,982,437	0	0
9:00	71.2	13,182,567	1	0	0	13,182,567	0	0
10:00	70.9	12,302,688	1	0	0	12,302,688	0	0
11:00	71.3	13,489,629	1	0	0	13,489,629	0	0
12:00	71.5	14,125,375	1	0	0	14,125,375	0	0
13:00	71.0	12,589,254	1	0	0	12,589,254	0	0
14:00	71.8	15,135,612	1	0	0	15,135,612	0	0
15:00	72.4	17,378,008	1	0	0	17,378,008	0	0
16:00	72.0	15,848,932	1	0	0	15,848,932	0	0
17:00	72.1	16,218,101	1	0	0	16,218,101	0	0
18:00	71.0	12,589,254	1	0	0	12,589,254	0	0
19:00	69.9	9,772,372	0	1	0	0	9,772,372	0
20:00	67.2	5,248,075	0	1	0	0	5,248,075	0
21:00	66.0	3,981,072	0	1	0	0	3,981,072	0
22:00	63.7	2,344,229	0	0	1	0	0	2,344,229
23:00	60.9	1,230,269	0	0	1	0	0	1,230,269
Sum of Sound Power during Period wo/penalty						177,624,652	19,001,519	32,724,187
Log Factor for CNEL Penalty (i.e., 10*log(x))						1	3	10
Sound Power during Period with penalty						177,624,652	57,004,556	327,241,873

Total Daily Sound Power, with penalties	561,871,080
Hours per Day	24
Average Hourly Sound Power, with penalties	23,411,295
CNEL	73.7

Computation of Ldn

Ldn computation on next page.

Period of 24-Hour Day (1=included, 0=not)		Sound Power Breakdown by Period of Day	
Day	Night	Day	Night
0	1	0	549,541
0	1	0	389,045
0	1	0	467,735
0	1	0	1,174,898
0	1	0	4,265,795
0	1	0	9,120,108
0	1	0	13,182,567
1	0	17,782,794	0
1	0	16,982,437	0
1	0	13,182,567	0
1	0	12,302,688	0
1	0	13,489,629	0
1	0	14,125,375	0
1	0	12,589,254	0
1	0	15,135,612	0
1	0	17,378,008	0
1	0	15,848,932	0
1	0	16,218,101	0
1	0	12,589,254	0
1	0	9,772,372	0
1	0	5,248,075	0
1	0	3,981,072	0
0	1	0	2,344,229
0	1	0	1,230,269

Sum of Sound Power during Period wo/penalty	196,626,170	32,724,187
Log Factor for Penalty (i.e., 10*log(x))	1	10
Sound Power during Period with penalty	196,626,170	327,241,873

Total Daily Sound Power, with penalties	523,868,043
Hours per Day	24
Average Hourly Sound Power, with penalties	21,827,835
Ldn	73.4

Notes:

Computation of the CNEL based on 1-hour Leq measurements for each hour of a day are based on equation 2-27 on pg. 2-57 of Caltrans 2009.

Computation of the Ldn based on 1-hour Leq measurements for each hour of a day are based on equation 2-26 on pg. 2-56 of Caltrans 2009.

Log factors for the Ldn and CNEL penalties are provided in Table 2-12 on pg. 2-52 of Caltrans 2009.

Source:

California Deaprtment of Transportation (Caltrans), Divisiong of Environmental Analysis. 2009 (November). *2009 Technical Noise Supplement* . Sacramento, CA. Available: <http://www.dot.ca.gov/hq/env/noise/>. Accessed September 24, 2010.

Long-Term Noise Measurement Summary

KEY: Orange cells are for input.
Grey cells are intermediate calculations performed by the model.
Green cells are data to present in a written analysis (output).

Measurement Site: Site 2
Measurement Date: May/03/2022
Project Name: Temecula Valley Hospital Master Plan Update

Hour of Day (military time)	Sound Level Leq (dBA)	Sound Power =10*Log(dBA/10)	Computation of CNEL: Period of 24-Hour Day (1=included, 0=not)			Sound Power Breakdown by Period of Day		
			Day	Evening	Night	Day	Evening	Night
0:00	43.4	21,878	0	0	1	0	0	21,878
1:00	43.3	21,380	0	0	1	0	0	21,380
2:00	43.4	21,878	0	0	1	0	0	21,878
3:00	44.7	29,512	0	0	1	0	0	29,512
4:00	48.6	72,444	0	0	1	0	0	72,444
5:00	55.3	338,844	0	0	1	0	0	338,844
6:00	51.8	151,356	0	0	1	0	0	151,356
7:00	51.4	138,038	1	0	0	138,038	0	0
8:00	50.9	123,027	1	0	0	123,027	0	0
9:00	50.1	102,329	1	0	0	102,329	0	0
10:00	49.2	83,176	1	0	0	83,176	0	0
11:00	54.3	269,153	1	0	0	269,153	0	0
12:00	51.8	151,356	1	0	0	151,356	0	0
13:00	49.7	93,325	1	0	0	93,325	0	0
14:00	68.7	7,413,102	1	0	0	7,413,102	0	0
15:00	52.5	177,828	1	0	0	177,828	0	0
16:00	54.3	269,153	1	0	0	269,153	0	0
17:00	54.2	263,027	1	0	0	263,027	0	0
18:00	68.8	7,585,776	1	0	0	7,585,776	0	0
19:00	61.8	1,513,561	0	1	0	0	1,513,561	0
20:00	48.6	72,444	0	1	0	0	72,444	0
21:00	47.2	52,481	0	1	0	0	52,481	0
22:00	45.9	38,905	0	0	1	0	0	38,905
23:00	44.0	25,119	0	0	1	0	0	25,119

Sum of Sound Power during Period wo/penalty	16,669,292	1,638,486	721,314
Log Factor for CNEL Penalty (i.e., 10*log(x))	1	3	10
Sound Power during Period with penalty	16,669,292	4,915,457	7,213,142

Total Daily Sound Power, with penalties	28,797,891
Hours per Day	24
Average Hourly Sound Power, with penalties	1,199,912
CNEL	60.8

Ldn computation on next page.

Computation of Ldn

Period of 24-Hour Day (1=included, 0=not)		Sound Power Breakdown by Period of Day	
Day	Night	Day	Night
0	1	0	21,878
0	1	0	21,380
0	1	0	21,878
0	1	0	29,512
0	1	0	72,444
0	1	0	338,844
0	1	0	151,356
1	0	138,038	0
1	0	123,027	0
1	0	102,329	0
1	0	83,176	0
1	0	269,153	0
1	0	151,356	0
1	0	93,325	0
1	0	7,413,102	0
1	0	177,828	0
1	0	269,153	0
1	0	263,027	0
1	0	7,585,776	0
1	0	1,513,561	0
1	0	72,444	0
1	0	52,481	0
0	1	0	38,905
0	1	0	25,119

Sum of Sound Power during Period wo/penalty	18,307,778	721,314
Log Factor for Penalty (i.e., 10*log(x))	1	10
Sound Power during Period with penalty	18,307,778	7,213,142

Total Daily Sound Power, with penalties	25,520,920
Hours per Day	24
Average Hourly Sound Power, with penalties	1,063,372
Ldn	60.3

Notes:

Computation of the CNEL based on 1-hour Leq measurements for each hour of a day are based on equation 2-27 on pg. 2-57 of Caltrans 2009.

Computation of the Ldn based on 1-hour Leq measurements for each hour of a day are based on equation 2-26 on pg. 2-56 of Caltrans 2009.

Log factors for the Ldn and CNEL penalties are provided in Table 2-12 on pg. 2-52 of Caltrans 2009.

Source:

California Deaprtment of Transportation (Caltrans), Divisiong of Environmental Analysis. 2009 (November). *2009 Technical Noise Supplement* . Sacramento, CA. Available: <http://www.dot.ca.gov/hq/env/noise/>. Accessed September 24, 2010.

Long-Term Noise Measurement Summary

KEY: Orange cells are for input.
Grey cells are intermediate calculations performed by the model.
Green cells are data to present in a written analysis (output).

Measurement Site: Site 3
Measurement Date: May/03/2022
Project Name: Temecula Valley Hospital Master Plan Update

Hour of Day (military time)	Sound Level Leq (dBA)	Sound Power =10*Log(dBA/10)	Computation of CNEL: Period of 24-Hour Day (1=included, 0=not)			Sound Power Breakdown by Period of Day		
			Day	Evening	Night	Day	Evening	Night
0:00	42.1	16,218	0	0	1	0	0	16,218
1:00	42.7	18,621	0	0	1	0	0	18,621
2:00	43.4	21,878	0	0	1	0	0	21,878
3:00	42.4	17,378	0	0	1	0	0	17,378
4:00	45.7	37,154	0	0	1	0	0	37,154
5:00	49.1	81,283	0	0	1	0	0	81,283
6:00	49.8	95,499	0	0	1	0	0	95,499
7:00	49.4	87,096	1	0	0	87,096	0	0
8:00	50.9	123,027	1	0	0	123,027	0	0
9:00	50.3	107,152	1	0	0	107,152	0	0
10:00	49.3	85,114	1	0	0	85,114	0	0
11:00	59.6	912,011	1	0	0	912,011	0	0
12:00	54.6	288,403	1	0	0	288,403	0	0
13:00	48.4	69,183	1	0	0	69,183	0	0
14:00	56.9	489,779	1	0	0	489,779	0	0
15:00	50.6	114,815	1	0	0	114,815	0	0
16:00	51.5	141,254	1	0	0	141,254	0	0
17:00	53.6	229,087	1	0	0	229,087	0	0
18:00	59.8	954,993	1	0	0	954,993	0	0
19:00	53.6	229,087	0	1	0	0	229,087	0
20:00	51.5	141,254	0	1	0	0	141,254	0
21:00	47.7	58,884	0	1	0	0	58,884	0
22:00	46.3	42,658	0	0	1	0	0	42,658
23:00	44.0	25,119	0	0	1	0	0	25,119

Sum of Sound Power during Period wo/penalty	3,601,913	429,225	355,807
Log Factor for CNEL Penalty (i.e., 10*log(x))	1	3	10
Sound Power during Period with penalty	3,601,913	1,287,675	3,558,072

Total Daily Sound Power, with penalties	8,447,660
Hours per Day	24
Average Hourly Sound Power, with penalties	351,986
CNEL	55.5

Ldn computation on next page.

Computation of Ldn

Period of 24-Hour Day (1=included, 0=not)		Sound Power Breakdown by Period of Day	
Day	Night	Day	Night
0	1	0	16,218
0	1	0	18,621
0	1	0	21,878
0	1	0	17,378
0	1	0	37,154
0	1	0	81,283
0	1	0	95,499
1	0	87,096	0
1	0	123,027	0
1	0	107,152	0
1	0	85,114	0
1	0	912,011	0
1	0	288,403	0
1	0	69,183	0
1	0	489,779	0
1	0	114,815	0
1	0	141,254	0
1	0	229,087	0
1	0	954,993	0
1	0	229,087	0
1	0	141,254	0
1	0	58,884	0
0	1	0	42,658
0	1	0	25,119

Sum of Sound Power during Period wo/penalty	4,031,138	355,807
Log Factor for Penalty (i.e., 10*log(x))	1	10
Sound Power during Period with penalty	4,031,138	3,558,072

Total Daily Sound Power, with penalties	7,589,211
Hours per Day	24
Average Hourly Sound Power, with penalties	316,217
Ldn	55.0

Notes:

Computation of the CNEL based on 1-hour Leq measurements for each hour of a day are based on equation 2-27 on pg. 2-57 of Caltrans 2009.

Computation of the Ldn based on 1-hour Leq measurements for each hour of a day are based on equation 2-26 on pg. 2-56 of Caltrans 2009.

Log factors for the Ldn and CNEL penalties are provided in Table 2-12 on pg. 2-52 of Caltrans 2009.

Source:

California Deaprtment of Transportation (Caltrans), Divisiong of Environmental Analysis. 2009 (November). *2009 Technical Noise Supplement* . Sacramento, CA. Available: <http://www.dot.ca.gov/hq/env/noise/>. Accessed September 24, 2010.

Long-Term Noise Measurement Summary

KEY: Orange cells are for input.
Grey cells are intermediate calculations performed by the model.
Green cells are data to present in a written analysis (output).

Measurement Site: Site 5
Measurement Date: May/03/2022
Project Name: Temecula Valley Hospital Master Plan Update

Computation of CNEL

Hour of Day (military time)	Sound Level Leq (dBA)	Sound Power =10*Log(dBA/10)	Period of 24-Hour Day (1=included, 0=not)			Sound Power Breakdown by Period of Day		
			Day	Evening	Night	Day	Evening	Night
0:00	65.3	3,388,442	0	0	1	0	0	3,388,442
1:00	64.1	2,570,396	0	0	1	0	0	2,570,396
2:00	63.1	2,041,738	0	0	1	0	0	2,041,738
3:00	64.3	2,691,535	0	0	1	0	0	2,691,535
4:00	68.0	6,309,573	0	0	1	0	0	6,309,573
5:00	69.5	8,912,509	0	0	1	0	0	8,912,509
6:00	71.6	14,454,398	0	0	1	0	0	14,454,398
7:00	72.0	15,848,932	1	0	0	15,848,932	0	0
8:00	72.9	19,498,446	1	0	0	19,498,446	0	0
9:00	72.6	18,197,009	1	0	0	18,197,009	0	0
10:00	72.5	17,782,794	1	0	0	17,782,794	0	0
11:00	72.4	17,378,008	1	0	0	17,378,008	0	0
12:00	72.3	16,982,437	1	0	0	16,982,437	0	0
13:00	72.1	16,218,101	1	0	0	16,218,101	0	0
14:00	73.0	19,952,623	1	0	0	19,952,623	0	0
15:00	72.1	16,218,101	1	0	0	16,218,101	0	0
16:00	72.9	19,498,446	1	0	0	19,498,446	0	0
17:00	72.7	18,620,871	1	0	0	18,620,871	0	0
18:00	73.1	20,417,379	1	0	0	20,417,379	0	0
19:00	72.6	18,197,009	0	1	0	0	18,197,009	0
20:00	71.6	14,454,398	0	1	0	0	14,454,398	0
21:00	70.6	11,481,536	0	1	0	0	11,481,536	0
22:00	69.6	9,120,108	0	0	1	0	0	9,120,108
23:00	67.3	5,370,318	0	0	1	0	0	5,370,318
Sum of Sound Power during Period wo/penalty						216,613,147	44,132,943	54,859,017
Log Factor for CNEL Penalty (i.e., 10*log(x))						1	3	10
Sound Power during Period with penalty						216,613,147	132,398,828	548,590,170

Total Daily Sound Power, with penalties	897,602,145
Hours per Day	24
Average Hourly Sound Power, with penalties	37,400,089
CNEL	75.7

Ldn computation on next page.

Computation of Ldn

Period of 24-Hour Day (1=included, 0=not)		Sound Power Breakdown by Period of Day	
Day	Night	Day	Night
0	1	0	3,388,442
0	1	0	2,570,396
0	1	0	2,041,738
0	1	0	2,691,535
0	1	0	6,309,573
0	1	0	8,912,509
0	1	0	14,454,398
1	0	15,848,932	0
1	0	19,498,446	0
1	0	18,197,009	0
1	0	17,782,794	0
1	0	17,378,008	0
1	0	16,982,437	0
1	0	16,218,101	0
1	0	19,952,623	0
1	0	16,218,101	0
1	0	19,498,446	0
1	0	18,620,871	0
1	0	20,417,379	0
1	0	18,197,009	0
1	0	14,454,398	0
1	0	11,481,536	0
0	1	0	9,120,108
0	1	0	5,370,318

Sum of Sound Power during Period wo/penalty	260,746,090	54,859,017
Log Factor for Penalty (i.e., 10*log(x))	1	10
Sound Power during Period with penalty	260,746,090	548,590,170

Total Daily Sound Power, with penalties	809,336,260
Hours per Day	24
Average Hourly Sound Power, with penalties	33,722,344
Ldn	75.3

Notes:

Computation of the CNEL based on 1-hour Leq measurements for each hour of a day are based on equation 2-27 on pg. 2-57 of Caltrans 2009.

Computation of the Ldn based on 1-hour Leq measurements for each hour of a day are based on equation 2-26 on pg. 2-56 of Caltrans 2009.

Log factors for the Ldn and CNEL penalties are provided in Table 2-12 on pg. 2-52 of Caltrans 2009.

Source:

California Deaprtment of Transportation (Caltrans), Divisiong of Environmental Analysis. 2009 (November). *2009 Technical Noise Supplement* . Sacramento, CA. Available: <http://www.dot.ca.gov/hq/env/noise/>. Accessed September 24, 2010.

Parking Lot Noise Calculation

KEY:	Orange cells are for input.
	Green cells are data to present in a written analysis (output).

Number of automobiles per hour	425
Number of buses per hour	0
Distance to sensitive receptor (feet)	216

	distance	sound level
Leq @	50	**58.7**
Leq @	216	**46.0**

Source

Federal Transit Administration. 2018 (September). Transit Noise and Vibration Impact Assessment. Washington, D.C. Available: https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf. Accessed February 4, 2019. See pages 45–47, including Equation 4-14.

Existing Noise Combined with Parking Lot Noise

Hourly Leq Noise Level by Noise Source	Existing Measured Noise Levels	Parking Lot Noise Levels	Combined Hourly Leq	Difference
Hour of Day				
0:00	43.4	46.0	47.9	4.5
1:00	43.3	46.0	47.8	4.5
2:00	43.4	46.0	47.9	4.5
3:00	44.7	46.0	48.4	3.7
4:00	48.6	46.0	50.5	1.9
5:00	55.3	46.0	55.8	0.5
6:00	51.8	46.0	52.8	1.0
7:00	51.4	46.0	52.5	1.1
8:00	50.9	46.0	52.1	1.2
9:00	50.1	46.0	51.5	1.4
10:00	49.2	46.0	50.9	1.7
11:00	54.3	46.0	54.9	0.6
12:00	51.8	46.0	52.8	1.0
13:00	49.7	46.0	51.2	1.5
14:00	68.7	46.0	68.7	0.0
15:00	52.5	46.0	53.4	0.9
16:00	54.3	46.0	54.9	0.6
17:00	54.2	46.0	54.8	0.6
18:00	68.8	46.0	68.8	0.0
19:00	61.8	46.0	61.9	0.1
20:00	48.6	46.0	50.5	1.9
21:00	47.2	46.0	49.6	2.4
22:00	45.9	46.0	48.9	3.0
23:00	44.0	46.0	48.1	4.1

Notes

Existing Noise level values are shown in Appendix X, Long-term Noise Measurement Summary worksheet

Parking Lot CNEL Calculation

KEY: Orange cells are for input.
Grey cells are intermediate calculations performed by the model.
Green cells are data to present in a written analysis (output).

Measurement Site: Location 2: 30955 De Portola Road
Measurement Date: May 3rd 2022
Project Name: Temecula Valley Hospital Master Plan

Hour of Day (military time)	Sound Level Leq (dBA)	Sound Power =10*Log(dBA/10)	Computation of CNEL: Period of 24-Hour Day (1=included, 0=not) Day	Evening	Night	Sound Power Breakdown by Period of Day Day	Evening	Night
0:00	47.9	61,359	0	0	1	0	0	61,359
1:00	47.8	60,861	0	0	1	0	0	60,861
2:00	47.9	61,359	0	0	1	0	0	61,359
3:00	48.4	68,993	0	0	1	0	0	68,993
4:00	50.5	111,925	0	0	1	0	0	111,925
5:00	55.8	378,325	0	0	1	0	0	378,325
6:00	52.8	190,837	0	0	1	0	0	190,837
7:00	52.5	177,520	1	0	0	177,520	0	0
8:00	52.1	162,508	1	0	0	162,508	0	0
9:00	51.5	141,811	1	0	0	141,811	0	0
10:00	50.9	122,658	1	0	0	122,658	0	0
11:00	54.9	308,635	1	0	0	308,635	0	0
12:00	52.8	190,837	1	0	0	190,837	0	0
13:00	51.2	132,807	1	0	0	132,807	0	0
14:00	68.7	7,452,584	1	0	0	7,452,584	0	0
15:00	53.4	217,309	1	0	0	217,309	0	0
16:00	54.9	308,635	1	0	0	308,635	0	0
17:00	54.8	302,508	1	0	0	302,508	0	0
18:00	68.8	7,625,257	1	0	0	7,625,257	0	0
19:00	61.9	1,553,043	0	1	0	0	1,553,043	0
20:00	50.5	111,925	0	1	0	0	111,925	0
21:00	49.6	91,962	0	1	0	0	91,962	0
22:00	48.9	78,386	0	0	1	0	0	78,386
23:00	48.1	64,600	0	0	1	0	0	64,600
Sum of Sound Power during Period wo/penalty						17,143,068	1,756,929	1,076,646
Log Factor for CNEL Penalty (i.e., 10*log(x))						1	3	10
Sound Power during Period with penalty						17,143,068	5,270,788	10,766,459

Total Daily Sound Power, with penalties	33,180,315
Hours per Day	24
Average Hourly Sound Power, with penalties	1,382,513
CNEL	61.4

Ldn computation on next page.

Computation of Ldn

Period of 24-Hour Day (1=included, 0=not)		Sound Power Breakdown by Period of Day	
Day	Night	Day	Night
0	1	0	61,359
0	1	0	60,861
0	1	0	61,359
0	1	0	68,993
0	1	0	111,925
0	1	0	378,325
0	1	0	190,837
1	0	177,520	0
1	0	162,508	0
1	0	141,811	0
1	0	122,658	0
1	0	308,635	0
1	0	190,837	0
1	0	132,807	0
1	0	7,452,584	0
1	0	217,309	0
1	0	308,635	0
1	0	302,508	0
1	0	7,625,257	0
1	0	1,553,043	0
1	0	111,925	0
1	0	91,962	0
0	1	0	78,386
0	1	0	64,600

Sum of Sound Power during Period wo/penalty	18,899,997	1,076,646
Log Factor for Penalty (i.e., 10*log(x))	1	10
Sound Power during Period with penalty	18,899,997	10,766,459

Total Daily Sound Power, with penalties	29,666,456
Hours per Day	24
Average Hourly Sound Power, with penalties	1,236,102
Ldn	60.9

Notes:

Computation of the CNEL based on 1-hour Leq measurements for each hour of a day are based on equation 2-27 on pg. 2-57 of Caltrans 2009.

Computation of the Ldn based on 1-hour Leq measurements for each hour of a day are based on equation 2-26 on pg. 2-56 of Caltrans 2009.

Log factors for the Ldn and CNEL penalties are provided in Table 2-12 on pg. 2-52 of Caltrans 2009.

Source:

California Deaprtment of Transportation (Caltrans), Divisiong of Environmental Analysis. 2009 (November). *2009 Technical Noise Supplement* . Sacramento, CA. Available: <http://www.dot.ca.gov/hq/env/noise/>. Accessed September 24, 2010.

Traffic Noise Spreadsheet Calculator

Project: **Temecula Valley Hospital Master Plan Update**

Number	Name	Segment Description and Location From	To	Existing Conditions	Existing + Project Conditions	Δ Existing – Existing + Project	Cumulative Conditions	Cumulative +Project Conditions	Δ Cumulative – Cumulative + Project
Summary of Net Changes									
1	De Portola Road	Vallejo Road	Jedediah Smith Road	65.7	65.8	0.2	66.1	66.3	0.1
2	De Portola Road	Jedediah Smith Road	Project Driveway	65.3	65.5	0.2	65.8	65.9	0.2
3	De Portola Road	Project Driveway	Margarita Parkway	65.6	66.0	0.4	66.0	66.4	0.4
4	De Portola Road	Margarita Parkway	Meadows Parkway	65.7	65.8	0.2	65.8	65.9	0.2
5	De Portola Road	Meadows Parkway	Campanula Way	64.1	64.3	0.2	64.5	64.7	0.2
6	De Portola Road	Campanula Way	Butterfield Stage Road	63.9	64.3	0.5	64.3	64.7	0.4
7	Temecula Parkway	I-15 Ramps	Bedford Court	75.3	75.4	0.1	76.1	76.1	0.1
8	Temecula Parkway	Bedford Court	La Paz Road	75.4	75.4	0.1	76.1	76.1	0.1
9	Temecula Parkway	La Paz Road	Wabash Lane	75.4	75.5	0.1	76.1	76.1	0.1
10	Temecula Parkway	Wabash Lane	Pechanga Parkway	75.3	75.4	0.1	76.1	76.1	0.1
11	Temecula Parkway	Pechanga Parkway	Jedediah Smith Road	73.5	73.7	0.2	73.9	74.2	0.2
12	Temecula Parkway	Jedediah Smith Road	Kevin Place	73.0	73.4	0.3	73.6	73.9	0.3
13	Temecula Parkway	Kevin Place	Avenida De Missionnes	73.0	73.3	0.3	74.3	74.5	0.2
14	Temecula Parkway	Avenida De Missionnes	Dona Lynora	72.7	73.1	0.3	74.3	74.5	0.2
15	Temecula Parkway	Dona Lynora	Hospital Driveway (Country Glen V	72.8	73.1	0.3	74.3	74.5	0.2
16	Temecula Parkway	Hospital Driveway (Contry Glen W	Redhawk Parkway	71.8	72.3	0.4	74.3	74.6	0.3
17	Temecula Parkway	Redhawk Parkway	Camino Del Sol	72.2	72.5	0.3	73.6	73.8	0.2
18	Temecula Parkway	Camino Del Sol	Meadows Parkway (Apis Road)	71.8	72.1	0.3	73.7	73.9	0.2
19	Temecula Parkway	Meadows Parkway (Apis Road)	Mahlon Vail Road	70.8	71.0	0.2	73.6	73.7	0.1
20	Temecula Parkway	Meadows Parkway (Apis Road)	Butterfield Stage Road	70.7	70.9	0.2	72.8	72.9	0.1
21	Pechanga Parkway	Temecula Parkway	Rainbow Valley Boulevard	70.3	70.4	0.1	70.8	70.9	0.1
22	Margarita Road (Redhawk Parkv	Jedediah Smith Road	De Portola Road	68.4	68.6	0.2	68.9	69.0	0.1
23	Margarita Road (Redhawk Parkv	De Portola Road	Temecula Parkway	67.7	67.8	0.1	68.1	68.2	0.1
24	Margarita Road (Redhawk Parkv	Temecula Parkway	Vail Ranch Parkway	67.4	67.4	0.0	67.8	67.8	0.0
25	Meadows Parkway	De Portola Road	Campanula Way	65.8	66.1	0.3	66.3	66.6	0.3
26	Meadows Parkway	Campanula Way	Temecula Parkway	66.0	66.4	0.4	66.2	66.6	0.4
27	Butterfield Stage Road	De Portola Road	Temecula Parkway	69.3	69.4	0.1	69.7	69.8	0.1

Traffic Noise Spreadsheet Calculator

Project: Temecula Valley Hospital Master Plan Update

Noise Level Descriptor: CNEL
Site Conditions: Hard
Traffic Input: ADT
Traffic K-Factor:

				Input											Output				
	Segment Description and Location					Distance to Directional Centerline, (feet)[4]		Traffic Distribution Characteristics							CNEL,	Distance to Contour, (feet)[3]			
Number	Name	From	To	ADT	Speed (mph)	Near	Far	% Auto	% Medium	% Heavy	% Day	% Eve	% Night		(dBA)[5,6,7]	70 dBA	65 dBA	60 dBA	55 dBA
Existing Conditions																			
1	De Portola Road	Vallejo Road	Jedediah Smith Road	11,820	45	85	112	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%		65.7	36	114	359	1136
2	De Portola Road	Jedediah Smith Road	Project Driveway	10,890	45	85	112	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%		65.3	33	105	331	1047
3	De Portola Road	Project Driveway	Margarita Parkway	11,540	45	85	112	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%		65.6	35	111	351	1109
4	De Portola Road	Margarita Parkway	Meadows Parkway	11,810	45	85	112	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%		65.7	36	114	359	1135
5	De Portola Road	Meadows Parkway	Campanula Way	8,190	45	85	112	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%		64.1	25	79	249	787
6	De Portola Road	Campanula Way	Butterfield Stage Road	7,810	45	85	112	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%		63.9	24	75	237	751
7	Temecula Parkway	I-15 Ramps	Bedford Court	69,250	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%		75.3	298	942	2980	9425
8	Temecula Parkway	Bedford Court	La Paz Road	70,680	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%		75.4	304	962	3042	9620
9	Temecula Parkway	La Paz Road	Wabash Lane	71,830	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%		75.4	309	978	3091	9776
10	Temecula Parkway	Wabash Lane	Pechanga Parkway	70,220	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%		75.3	302	956	3022	9557
11	Temecula Parkway	Pechanga Parkway	Jedediah Smith Road	45,800	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%		73.5	197	623	1971	6233
12	Temecula Parkway	Jedediah Smith Road	Kevin Place	41,290	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%		73.0	178	562	1777	5620
13	Temecula Parkway	Kevin Place	Avenida De Missionnes	41,140	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%		73.0	177	560	1771	5599
14	Temecula Parkway	Avenida De Missionnes	Dona Lynora	38,470	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%		72.7	166	524	1656	5236
15	Temecula Parkway	Dona Lynora	Hospital Driveway (Country Gl	39,050	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%		72.8	168	531	1681	5315
16	Temecula Parkway	Hospital Driveway (Contry Gle	Redhawk Parkway	31,220	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%		71.8	134	425	1344	4249
17	Temecula Parkway	Redhawk Parkway	Camino Del Sol	34,240	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%		72.2	147	466	1474	4660
18	Temecula Parkway	Camino Del Sol	Meadows Parkway (Apis Road	31,220	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%		71.8	134	425	1344	4249
19	Temecula Parkway	Meadows Parkway (Apis Road	Mahlon Vail Road	24,810	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%		70.8	107	338	1068	3377
20	Temecula Parkway	Meadows Parkway (Apis Road	Butterfield Stage Road	24,090	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%		70.7	104	328	1037	3279
21	Pechanga Parkway	Temecula Parkway	Rainbow Valley Boulevard	49,760	40	85	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%		70.3	108	343	1083	3426
22	Margarita Road (Redhawk Par	Jedediah Smith Road	De Portola Road	23,900	45	87	126	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%		68.4	73	231	732	2315
23	Margarita Road (Redhawk Par	De Portola Road	Temecula Parkway	27,280	40	86	116	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%		67.7	59	187	592	1871
24	Margarita Road (Redhawk Par	Temecula Parkway	Vail Ranch Parkway	34,360	35	78	116	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%		67.4	52	165	521	1646
25	Meadows Parkway	De Portola Road	Campanula Way	12,440	45	85	115	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%		65.8	38	120	379	1198
26	Meadows Parkway	Campanula Way	Temecula Parkway	12,970	45	85	115	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%		66.0	39	125	395	1249
27	Butterfield Stage Road	De Portola Road	Temecula Parkway	20,810	50	90	115	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%		69.3	86	272	862	2725
28	Butterfield Stage Road	Temecula Parkway	Nighthawk Pass	22,397	45	90	115	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%		68.2	68	215	679	2148

*All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow and does not account for shielding of any type or finite roadway adjustments. All levels are reported as A-weighted noise levels.

Traffic Noise Spreadsheet Calculator

Project: Temecula Valley Hospital Master Plan Update

Noise Level Descriptor: CNEL
Site Conditions: Hard
Traffic Input: ADT
Traffic K-Factor:

	Segment Description and Location			Input										Output				
						Distance to Directional Centerline, (feet)[4]		Traffic Distribution Characteristics						CNEL,	Distance to Contour, (feet)[3]			
Number	Name	From	To	ADT	Speed (mph)	Near	Far	% Auto	% Medium	% Heavy	% Day	% Eve	% Night	(dBA)[5,6,7]	70 dBA	65 dBA	60 dBA	55 dBA
Existing + Project Conditions																		
1	De Portola Road	Vallejo Road	Jedediah Smith Road	12,260	45	85	112	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	65.8	37	118	373	1178
2	De Portola Road	Jedediah Smith Road	Project Driveway	11,330	45	85	112	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	65.5	34	109	344	1089
3	De Portola Road	Project Driveway	Margarita Parkway	12,640	45	85	112	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	66.0	38	121	384	1215
4	De Portola Road	Margarita Parkway	Meadows Parkway	12,250	45	85	112	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	65.8	37	118	372	1177
5	De Portola Road	Meadows Parkway	Campanula Way	8,630	45	85	112	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	64.3	26	83	262	829
6	De Portola Road	Campanula Way	Butterfield Stage Road	8,690	45	85	112	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	64.3	26	84	264	835
7	Temecula Parkway	I-15 Ramps	Bedford Court	70,400	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	75.4	303	958	3030	9581
8	Temecula Parkway	Bedford Court	La Paz Road	71,830	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	75.4	309	978	3091	9776
9	Temecula Parkway	La Paz Road	Wabash Lane	73,070	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	75.5	314	994	3145	9945
10	Temecula Parkway	Wabash Lane	Pechanga Parkway	71,540	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	75.4	308	974	3079	9737
11	Temecula Parkway	Pechanga Parkway	Jedediah Smith Road	48,450	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	73.7	209	659	2085	6594
12	Temecula Parkway	Jedediah Smith Road	Kevin Place	44,380	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	73.4	191	604	1910	6040
13	Temecula Parkway	Kevin Place	Avenida De Missionnes	44,230	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	73.3	190	602	1904	6020
14	Temecula Parkway	Avenida De Missionnes	Dona Lynora	41,560	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	73.1	179	566	1789	5656
15	Temecula Parkway	Dona Lynora	Hospital Driveway (Country Gl	41,700	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	73.1	179	568	1795	5675
16	Temecula Parkway	Hospital Driveway (Contry Gle	Redhawk Parkway	34,530	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	72.3	149	470	1486	4700
17	Temecula Parkway	Redhawk Parkway	Camino Del Sol	36,620	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	72.5	158	498	1576	4984
18	Temecula Parkway	Camino Del Sol	Meadows Parkway (Apis Road	33,600	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	72.1	145	457	1446	4573
19	Temecula Parkway	Meadows Parkway (Apis Road	Mahlon Vail Road	25,690	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	71.0	111	350	1106	3496
20	Temecula Parkway	Meadows Parkway (Apis Road	Butterfield Stage Road	24,970	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	70.9	107	340	1075	3398
21	Pechanga Parkway	Temecula Parkway	Rainbow Valley Boulevard	51,080	40	85	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	70.4	111	352	1112	3517
22	Margarita Road (Redhawk Par	Jedediah Smith Road	De Portola Road	24,780	45	87	126	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	68.6	76	240	759	2400
23	Margarita Road (Redhawk Par	De Portola Road	Temecula Parkway	27,940	40	86	116	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	67.8	61	192	606	1917
24	Margarita Road (Redhawk Par	Temecula Parkway	Vail Ranch Parkway	34,400	35	78	116	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	67.4	52	165	521	1648
25	Meadows Parkway	De Portola Road	Campanula Way	13,320	45	85	115	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	66.1	41	128	406	1283
26	Meadows Parkway	Campanula Way	Temecula Parkway	14,290	45	85	115	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	66.4	44	138	435	1376
27	Butterfield Stage Road	De Portola Road	Temecula Parkway	21,340	50	90	115	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	69.4	88	279	884	2794
28	Butterfield Stage Road	Temecula Parkway	Nighthawk Pass	23,017	45	90	115	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	68.4	70	221	698	2208

*All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow and does not account for shielding of any type or finite roadway adjustments. All levels are reported as A-weighted noise levels.

Traffic Noise Spreadsheet Calculator

Project: Temecula Valley Hospital Master Plan Update

Noise Level Descriptor: CNEL
Site Conditions: Hard
Traffic Input: ADT
Traffic K-Factor:

	Segment Description and Location			Input										Output				
						Distance to Directional Centerline, (feet)[4]		Traffic Distribution Characteristics						CNEL,	Distance to Contour, (feet)[3]			
Number	Name	From	To	ADT	Speed (mph)	Near	Far	% Auto	% Medium	% Heavy	% Day	% Eve	% Night	(dBA)[5,6,7]	70 dBA	65 dBA	60 dBA	55 dBA
Cumulative Conditions																		
1	De Portola Road	Vallejo Road	Jedediah Smith Road	13,130	45	85	112	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	66.1	40	126	399	1262
2	De Portola Road	Jedediah Smith Road	Project Driveway	12,100	45	85	112	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	65.8	37	116	368	1163
3	De Portola Road	Project Driveway	Margarita Parkway	12,820	45	85	112	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	66.0	39	123	390	1232
4	De Portola Road	Margarita Parkway	Meadows Parkway	12,180	45	85	112	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	65.8	37	117	370	1171
5	De Portola Road	Meadows Parkway	Campanula Way	9,100	45	85	112	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	64.5	28	87	277	875
6	De Portola Road	Campanula Way	Butterfield Stage Road	8,680	45	85	112	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	64.3	26	83	264	834
7	Temecula Parkway	I-15 Ramps	Bedford Court	82,810	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	76.1	356	1127	3564	11270
8	Temecula Parkway	Bedford Court	La Paz Road	82,810	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	76.1	356	1127	3564	11270
9	Temecula Parkway	La Paz Road	Wabash Lane	83,110	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	76.1	358	1131	3577	11311
10	Temecula Parkway	Wabash Lane	Pechanga Parkway	83,110	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	76.1	358	1131	3577	11311
11	Temecula Parkway	Pechanga Parkway	Jedediah Smith Road	50,870	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	73.9	219	692	2189	6923
12	Temecula Parkway	Jedediah Smith Road	Kevin Place	46,810	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	73.6	201	637	2015	6371
13	Temecula Parkway	Kevin Place	Avenida De Missionnes	54,850	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	74.3	236	747	2361	7465
14	Temecula Parkway	Avenida De Missionnes	Dona Lynora	54,850	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	74.3	236	747	2361	7465
15	Temecula Parkway	Dona Lynora	Hospital Driveway (Country Gl	54,850	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	74.3	236	747	2361	7465
16	Temecula Parkway	Hospital Driveway (Contry Gle	Redhawk Parkway	55,680	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	74.3	240	758	2396	7578
17	Temecula Parkway	Redhawk Parkway	Camino Del Sol	47,360	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	73.6	204	645	2038	6446
18	Temecula Parkway	Camino Del Sol	Meadows Parkway (Apis Road	48,100	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	73.7	207	655	2070	6546
19	Temecula Parkway	Meadows Parkway (Apis Road	Mahlon Vail Road	46,750	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	73.6	201	636	2012	6363
20	Temecula Parkway	Meadows Parkway (Apis Road	Butterfield Stage Road	38,700	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	72.8	167	527	1666	5267
21	Pechanga Parkway	Temecula Parkway	Rainbow Valley Boulevard	55,270	40	85	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	70.8	120	381	1203	3805
22	Margarita Road (Redhawk Par	Jedediah Smith Road	De Portola Road	26,500	45	87	126	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	68.9	81	257	812	2566
23	Margarita Road (Redhawk Par	De Portola Road	Temecula Parkway	29,850	40	86	116	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	68.1	65	205	648	2048
24	Margarita Road (Redhawk Par	Temecula Parkway	Vail Ranch Parkway	37,920	35	78	116	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	67.8	57	182	575	1817
25	Meadows Parkway	De Portola Road	Campanula Way	13,820	45	85	115	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	66.3	42	133	421	1331
26	Meadows Parkway	Campanula Way	Temecula Parkway	13,500	45	85	115	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	66.2	41	130	411	1300
27	Butterfield Stage Road	De Portola Road	Temecula Parkway	22,790	50	90	115	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	69.7	94	298	944	2984
28	Butterfield Stage Road	Temecula Parkway	Nighthawk Pass	24,880	45	90	115	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	68.7	75	239	755	2387

*All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow and does not account for shielding of any type or finite roadway adjustments. All levels are reported as A-weighted noise levels.

Traffic Noise Spreadsheet Calculator

Project: Temecula Valley Hospital Master Plan Update

Noise Level Descriptor: CNEL
Site Conditions: Hard
Traffic Input: ADT
Traffic K-Factor:

				Input										Output				
	Segment Description and Location					Distance to Directional Centerline, (feet)[4]		Traffic Distribution Characteristics						CNEL,	Distance to Contour, (feet)[3]			
Number	Name	From	To	ADT	Speed (mph)	Near	Far	% Auto	% Medium	% Heavy	% Day	% Eve	% Night	(dBA)[5,6,7]	70 dBA	65 dBA	60 dBA	55 dBA
Cumulative +Project Conditions																		
1	De Portola Road	Vallejo Road	Jedediah Smith Road	13,570	45	85	112	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	66.3	41	130	412	1304
2	De Portola Road	Jedediah Smith Road	Project Driveway	12,540	45	85	112	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	65.9	38	121	381	1205
3	De Portola Road	Project Driveway	Margarita Parkway	13,920	45	85	112	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	66.4	42	134	423	1338
4	De Portola Road	Margarita Parkway	Meadows Parkway	12,620	45	85	112	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	65.9	38	121	384	1213
5	De Portola Road	Meadows Parkway	Campanula Way	9,540	45	85	112	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	64.7	29	92	290	917
6	De Portola Road	Campanula Way	Butterfield Stage Road	9,560	45	85	112	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	64.7	29	92	291	919
7	Temecula Parkway	I-15 Ramps	Bedford Court	83,960	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	76.1	361	1143	3614	11427
8	Temecula Parkway	Bedford Court	La Paz Road	83,960	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	76.1	361	1143	3614	11427
9	Temecula Parkway	La Paz Road	Wabash Lane	84,350	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	76.1	363	1148	3630	11480
10	Temecula Parkway	Wabash Lane	Pechanga Parkway	84,430	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	76.1	363	1149	3634	11491
11	Temecula Parkway	Pechanga Parkway	Jedediah Smith Road	53,520	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	74.2	230	728	2303	7284
12	Temecula Parkway	Jedediah Smith Road	Kevin Place	49,900	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	73.9	215	679	2148	6791
13	Temecula Parkway	Kevin Place	Avenida De Missionnes	57,940	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	74.5	249	789	2494	7886
14	Temecula Parkway	Avenida De Missionnes	Dona Lynora	57,940	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	74.5	249	789	2494	7886
15	Temecula Parkway	Dona Lynora	Hospital Driveway (Country Gl	57,500	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	74.5	247	783	2475	7826
16	Temecula Parkway	Hospital Driveway (Contry Gle	Redhawk Parkway	58,990	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	74.6	254	803	2539	8029
17	Temecula Parkway	Redhawk Parkway	Camino Del Sol	49,740	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	73.8	214	677	2141	6770
18	Temecula Parkway	Camino Del Sol	Meadows Parkway (Apis Road	50,480	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	73.9	217	687	2173	6870
19	Temecula Parkway	Meadows Parkway (Apis Road	Mahlon Vail Road	47,630	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	73.7	205	648	2050	6482
20	Temecula Parkway	Meadows Parkway (Apis Road	Butterfield Stage Road	39,580	50	65	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	72.9	170	539	1703	5387
21	Pechanga Parkway	Temecula Parkway	Rainbow Valley Boulevard	56,590	40	85	120	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	70.9	123	390	1232	3896
22	Margarita Road (Redhawk Par	Jedediah Smith Road	De Portola Road	27,380	45	87	126	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	69.0	84	265	839	2652
23	Margarita Road (Redhawk Par	De Portola Road	Temecula Parkway	30,510	40	86	116	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	68.2	66	209	662	2093
24	Margarita Road (Redhawk Par	Temecula Parkway	Vail Ranch Parkway	37,920	35	78	116	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	67.8	57	182	575	1817
25	Meadows Parkway	De Portola Road	Campanula Way	14,700	45	85	115	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	66.6	45	142	448	1416
26	Meadows Parkway	Campanula Way	Temecula Parkway	14,820	45	85	115	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	66.6	45	143	451	1427
27	Butterfield Stage Road	De Portola Road	Temecula Parkway	23,320	50	90	115	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	69.8	97	305	965	3053
28	Butterfield Stage Road	Temecula Parkway	Nighthawk Pass	25,500	45	90	115	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	68.8	77	245	774	2446

*All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow and does not account for shielding of any type or finite roadway adjustments. All levels are reported as A-weighted noise levels.

Citation #	Citations
1	Caltrans Technical Noise Supplement. 2009 (November). Table (5-11), Pg 5-60. Caltrans Technical Noise Supplement. 2013 (September). Table (4-2),
2	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-26), Pg 5-60. Caltrans Technical Noise Supplement. 2013 (September). Equation (4
3	Caltrans Technical Noise Supplement. 2009 (November). Equation (2-16), Pg 2-32. FHWA 2004 TNM Version 2.5
4	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-11), Pg 5-47, 48. FHWA 2004 TNM Version 2.5
5	Caltrans Technical Noise Supplement. 2009 (November). Equation (2-26), Pg 2-55, 56. Caltrans Technical Noise Supplement. 2013 (September). Equation (2
6	Caltrans Technical Noise Supplement. 2009 (November). Equation (2-27), Pg 2-57. Caltrans Technical Noise Supplement. 2013 (September). Equation (2
7	Caltrans Technical Noise Supplement. 2009 (November). Pg 2-53. Caltrans Technical Noise Supplement. 2013 (September). Pg 2-57.
8	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-7), Pg 5-45. FHWA 2004 TNM Version 2.5
9	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-8), Pg 5-45. FHWA 2004 TNM Version 2.5
10	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-9), Pg 5-45. FHWA 2004 TNM Version 2.5
11	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-13), Pg 5-49. FHWA 2004 TNM Version 2.5
12	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-14), Pg 5-49. FHWA 2004 TNM Version 2.5
13	Federal Highway Administration Traffic Noise Model Technical Manual. Report No. FHWA-PD-96-010. 1998 (January). Equation (16), Pg 67
14	Federal Highway Administration Traffic Noise Model Technical Manual. Report No. FHWA-PD-96-010. 1998 (January). Equation (20), Pg 69
15	Federal Highway Administration Traffic Noise Model Technical Manual. Report No. FHWA-PD-96-010. 1998 (January). Equation (18), Pg 69

References

California Department of Transportation (Caltrans). 2009 (November). Technical Noise Supplement. Available: http://www.dot.ca.gov/hq/env/noise/pub/tens_complete.pdf. A
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Pg 4-17.
-5), Pg 4-17.

-23), Pg 2-5
-24), Pg 2-5

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Indoor Utility Plant Equipment (LEQ)

Location	Distance to Nearest Receptor in feet	Combined Predicted Noise Level (L_{eq} dBA)
threshold	815	65.0
31450 De Portola Rd.	400	71.2
Madera Vista	280	74.3
30955 De Portola Rd.	585	67.9

Equipment	Reference Emission Noise Levels (L_{max}) at 50 feet[1]	Usage Factor[1]
Ventilation Fan	85	0.4
Ventilation Fan	85	0.4
Ventilation Fan	85	0.4
Ventilation Fan	85	0.4
Generator	82	0.4
Generator	82	0.4
Generator	82	0.4
Generator	82	0.4
Pumps	77	0.4
Pumps	77	0.4
Pumps	77	0.4
Pumps	77	0.4

Ground Type	hard
Source Height	8
Receiver Height	5
Ground Factor[2]	0.00

Predicted Noise Level [3]	L_{eq} dBA at 50 feet[3]
Ventilation Fan	81.0
Ventilation Fan	81.0
Ventilation Fan	81.0
Ventilation Fan	81.0
Generator	78.0
Generator	78.0
Generator	78.0
Generator	78.0
Pumps	73.0
Pumps	73.0
Pumps	73.0
Pumps	73.0

Combined Predicted Noise Level (L_{eq} dBA at 50 feet)
89.2

Sources:

[1] Obtained from the FHWA Roadway Construction Noise Model, January 2006. Table 1.

[2] Based on Figure 6-5 from the Federal Transit Noise and Vibration Impact Assessment, 2006 (pg 6-23).

[3] Based on the following from the Federal Transit Noise and Vibration Impact Assessment, 2006 (pg 12-3).

L_{eq}(equip) = E.L.+10*log (U.F.) - 20*log (D/50) - 10*G*log (D/50)

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects (FTA 2006: pg 6-23); and

D = Distance from source to receiver.

Outdoor Utility Plant Cooling Tower Equipment (LEQ)

Location	Distance to Nearest Receptor in feet	Combined Predicted Noise Level (L_{eq} dBA)
threshold	681	65.0
31450 De Portola Rd.	400	69.6
Madera Vista	280	72.7
30955 De Portola Rd.	585	66.3

Equipment	Reference Emission Noise Levels (L_{max}) at 50 feet[1]	Usage Factor[1]
Ventilation Fan	85	0.4
Ventilation Fan	85	0.4
Ventilation Fan	85	0.4
Ventilation Fan	85	0.4
Pumps	77	0.4
Pumps	77	0.4
Pumps	77	0.4
Pumps	77	0.4

Ground Type	hard
Source Height	8
Receiver Height	5
Ground Factor[2]	0.00

Predicted Noise Level [3]	L_{eq} dBA at 50 feet[3]
Ventilation Fan	81.0
Ventilation Fan	81.0
Ventilation Fan	81.0
Ventilation Fan	81.0
Pumps	73.0
Pumps	73.0
Pumps	73.0
Pumps	73.0

Combined Predicted Noise Level (L_{eq} dBA at 50 feet)
87.7

Sources:

[1] Obtained from the FHWA Roadway Construction Noise Model, January 2006. Table 1.

[2] Based on Figure 6-5 from the Federal Transit Noise and Vibration Impact Assessment, 2006 (pg 6-23).

[3] Based on the following from the Federal Transit Noise and Vibration Impact Assessment, 2006 (pg 12-3).

L_{eq}(equip) = E.L.+10*log (U.F.) - 20*log (D/50) - 10*G*log (D/50)

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects (FTA 2006: pg 6-23); and

D = Distance from source to receiver.

Addition of Noise Levels from Multiple Sources at a Discrete Receptor

OBJECTIVE: This work sheet is designed to estiamte the combined level of noise exposure at a single discrete receptor from multiple point sources.

KEY: Orange cells are for input.
Grey cells are intermediate calculations performed by the model.
Green cells are data to present in a written analysis (output).

Receptor Name: **Utility Plant to 31450 De Portola Road**

STEP 1: Identify the noise sources and enter the reference noise levels (dBA and distance).
STEP 2: Select the ground type (hard or soft), and enter the source and receiver heights.
STEP 3: Select the distance to the receptor and the reduction provided by any intervening barrier.

Step 1. Step 2. Step 3.

Noise Source	**Reference Noise Level**			**Attenuation Characteristics**				**Attenuated Noise Level at Receptor**			
	Reference Noise Level (dBA)	@	Reference Distance (ft)	Ground Type (soft/hard)	Source Height (ft)	Receiver Height (ft)	Ground Factor	Noise Level (dBA)	@	Distance to Receptor (ft)	Reduction Provided by Barrier, if any (dBA)
Indoor Utility Plant Equipment	89.2	@	50	hard	8	5	0.00	61.2	@	400	10
Outdoor Utility Plant Equipment	87.7	@	50	hard	8	5	0.00	69.6	@	400	0
Utility Plant (combined noise)	91.5	@	50	hard	8	5	0.00				
							0.66				
							0.66				
							0.66				

Combined level of noise exposure at receptor from all noise sources (dBA): **70.2**

Notes:

1 - Computation of the attenuated noise level is based on the equation presented on pg. 176 and 177 of FTA 2018.

2 - Computation of the ground factor is based on the equation presentd in Table 4-26 on pg. 86 of FTA 2018, where the distance of the reference noise leve can be adjusted and the usage factor is not applied (i.e., the usage factor is equal to 1).

3 - Summation of noise levels from different stationary noise sources at the same receptor is based on the equation presented on page 201 of FTA 2018.

Sources:

Federal Transit Association (FTA). 2018 (September). Transit Noise and Vibration Impact Assessment. Washington, D.C. Available: <http://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf>Accessed:

Sources:

Federal Transit Association (FTA). 2006 (May). Transit Noise and Vibration Impact Assessment. FTA-VA-90-1003-06. Washington, D.C. Available: <http://www.fta.dot.gov/documents/FTA_Noise_and_Vibration_Manual.pdf>. Accessed: March 5, 2020.

Addition of Noise Levels from Multiple Sources at a Discrete Receptor

OBJECTIVE: This work sheet is designed to estiamte the combined level of noise exposure at a single discrete receptor from multiple point sources.

KEY: Orange cells are for input.
Grey cells are intermediate calculations performed by the model.
Green cells are data to present in a written analysis (output).

Receptor Name: **Utility Plant to Madera Vista Multi-Family Unit Homes**

STEP 1: Identify the noise sources and enter the reference noise levels (dBA and distance).
STEP 2: Select the ground type (hard or soft), and enter the source and receiver heights.
STEP 3: Select the distance to the receptor and the reduction provided by any intervening barrier.

Step 1.				Step 2.				Step 3.			
Noise Source	**Reference Noise Level**			**Attenuation Characteristics**				**Attenuated Noise Level at Receptor**			
	Reference Noise Level (dBA)	@	Reference Distance (ft)	Ground Type (soft/hard)	Source Height (ft)	Receiver Height (ft)	Ground Factor	Noise Level (dBA)	@	Distance to Receptor (ft)	Reduction Provided by Barrier, if any (dBA)
Indoor Utility Plant Equipment	89.2	@	50	hard	8	5	0.00	64.3	@	280	10
Outdoor Utility Plant Equipment	87.7	@	50	hard	8	5	0.00	72.7	@	280	0
							0.66				
							0.66				
							0.66				
							0.66				

Combined level of noise exposure at receptor from all noise sources (dBA): **73.3**

Notes:

1 - Computation of the attenuated noise level is based on the equation presented on pg. 176 and 177 of FTA 2018.

2 - Computation of the ground factor is based on the equation presentd in Table 4-26 on pg. 86 of FTA 2018, where the distance of the reference noise leve can be adjusted and the usage factor is not applied (i.e., the usage factor is equal to 1).

3 - Summation of noise levels from different stationary noise sources at the same receptor is based on the equation presented on page 201 of FTA 2018.

Sources:

Federal Transit Association (FTA). 2018 (September). Transit Noise and Vibration Impact Assessment. Washington, D.C. Available: <http://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-

Sources:

Federal Transit Association (FTA). 2006 (May). Transit Noise and Vibration Impact Assessment. FTA-VA-90-1003-06. Washington, D.C. Available: <http://www.fta.dot.gov/documents/FTA_Noise_and_Vibration_Manual.pdf>. Accessed: March 5, 2020.

Addition of Noise Levels from Multiple Sources at a Discrete Receptor

OBJECTIVE: This work sheet is designed to estiamte the combined level of noise exposure at a single discrete receptor from multiple point sources.

KEY: Orange cells are for input.
Grey cells are intermediate calculations performed by the model.
Green cells are data to present in a written analysis (output).

Receptor Name: **Utility Plant to 30955 De Portola Road**

STEP 1: Identify the noise sources and enter the reference noise levels (dBA and distance).
STEP 2: Select the ground type (hard or soft), and enter the source and receiver heights.
STEP 3: Select the distance to the receptor and the reduction provided by any intervening barrier.

Step 1.				Step 2.				Step 3.			
Noise Source	**Reference Noise Level**			**Attenuation Characteristics**				**Attenuated Noise Level at Receptor**			
	Reference Noise Level (dBA)	@	Reference Distance (ft)	Ground Type (soft/hard)	Source Height (ft)	Receiver Height (ft)	Ground Factor	Noise Level (dBA)	@	Distance to Receptor (ft)	Reduction Provided by Barrier, if any (dBA)
Indoor Utility Plant Equipment	89.2	@	50	hard	8	5	0.00	57.9	@	585	10
Outdoor Utility Plant Equipment	87.7	@	50	hard	8	5	0.00	66.3	@	585	0
							0.66				
							0.66				
							0.66				
							0.66				

Combined level of noise exposure at receptor from all noise sources (dBA): **66.9**

Notes:

1 - Computation of the attenuated noise level is based on the equation presented on pg. 176 and 177 of FTA 2018.

2 - Computation of the ground factor is based on the equation presentd in Table 4-26 on pg. 86 of FTA 2018, where the distance of the reference noise leve can be adjusted and the usage factor is not applied (i.e., the usage factor is equal to 1).

3 - Summation of noise levels from different stationary noise sources at the same receptor is based on the equation presented on page 201 of FTA 2018.

Sources:

Federal Transit Association (FTA). 2018 (September). Transit Noise and Vibration Impact Assessment. Washington, D.C. Available: <http://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-

Sources:

Federal Transit Association (FTA). 2006 (May). Transit Noise and Vibration Impact Assessment. FTA-VA-90-1003-06. Washington, D.C. Available: <http://www.fta.dot.gov/documents/FTA_Noise_and_Vibration_Manual.pdf>. Accessed: March 5, 2020.

Existing Noise Combined with Utility Plant Noise @ 31450 De Portola Road

Hourly Leq Noise Level by Noise Source	Existing Measured Noise Levels	Utility Plant Noise Levels	Combined Hourly Leq	Difference
Hour of Day				
0:00	43.4	70.2	70.2	26.8
1:00	43.3	70.2	70.2	26.9
2:00	43.4	70.2	70.2	26.8
3:00	44.7	70.2	70.2	25.5
4:00	48.6	70.2	70.2	21.6
5:00	55.3	70.2	70.3	15.0
6:00	51.8	70.2	70.3	18.5
7:00	51.4	70.2	70.3	18.9
8:00	50.9	70.2	70.3	19.4
9:00	50.1	70.2	70.2	20.1
10:00	49.2	70.2	70.2	21.0
11:00	54.3	70.2	70.3	16.0
12:00	51.8	70.2	70.3	18.5
13:00	49.7	70.2	70.2	20.5
14:00	68.7	70.2	72.5	3.8
15:00	52.5	70.2	70.3	17.8
16:00	54.3	70.2	70.3	16.0
17:00	54.2	70.2	70.3	16.1
18:00	68.8	70.2	72.6	3.8
19:00	61.8	70.2	70.8	9.0
20:00	48.6	70.2	70.2	21.6
21:00	47.2	70.2	70.2	23.0
22:00	45.9	70.2	70.2	24.3
23:00	44.0	70.2	70.2	26.2

Notes

Existing Noise level values are shown in Appendix X, Long-term Noise Measurement Summary worksheet

Parking Lot CNEL Calculation

KEY: Orange cells are for input.
Grey cells are intermediate calculations performed by the model.
Green cells are data to present in a written analysis (output).

Measurement Site:	31450 De Portola Road
Measurement Date:	May 3rd 2022
Project Name:	Temecula Valley Hospital Master Plan

Computation of CNEL

Hour of Day (military time)	Sound Level Leq (dBA)	Sound Power =10*Log(dBA/10)	Period of 24-Hour Day (1=included, 0=not)			Sound Power Breakdown by Period of Day		
			Day	Evening	Night	Day	Evening	Night
0:00	70.2	10,492,629	0	0	1	0	0	10,492,629
1:00	70.2	10,492,131	0	0	1	0	0	10,492,131
2:00	70.2	10,492,629	0	0	1	0	0	10,492,629
3:00	70.2	10,500,264	0	0	1	0	0	10,500,264
4:00	70.2	10,543,195	0	0	1	0	0	10,543,195
5:00	70.3	10,809,596	0	0	1	0	0	10,809,596
6:00	70.3	10,622,108	0	0	1	0	0	10,622,108
7:00	70.3	10,608,790	1	0	0	10,608,790	0	0
8:00	70.3	10,593,779	1	0	0	10,593,779	0	0
9:00	70.2	10,573,081	1	0	0	10,573,081	0	0
10:00	70.2	10,553,928	1	0	0	10,553,928	0	0
11:00	70.3	10,739,905	1	0	0	10,739,905	0	0
12:00	70.3	10,622,108	1	0	0	10,622,108	0	0
13:00	70.2	10,564,077	1	0	0	10,564,077	0	0
14:00	72.5	17,883,854	1	0	0	17,883,854	0	0
15:00	70.3	10,648,580	1	0	0	10,648,580	0	0
16:00	70.3	10,739,905	1	0	0	10,739,905	0	0
17:00	70.3	10,733,779	1	0	0	10,733,779	0	0
18:00	72.6	18,056,528	1	0	0	18,056,528	0	0
19:00	70.8	11,984,313	0	1	0	0	11,984,313	0
20:00	70.2	10,543,195	0	1	0	0	10,543,195	0
21:00	70.2	10,523,233	0	1	0	0	10,523,233	0
22:00	70.2	10,509,656	0	0	1	0	0	10,509,656
23:00	70.2	10,495,871	0	0	1	0	0	10,495,871
Sum of Sound Power during Period wo/penalty						142,318,313	33,050,741	94,958,080
Log Factor for CNEL Penalty (i.e., 10*log(x))						1	3	10
Sound Power during Period with penalty						142,318,313	99,152,223	949,580,800

Total Daily Sound Power, with penalties	1,191,051,336
Hours per Day	24
Average Hourly Sound Power, with penalties	49,627,139
CNEL	77.0

Ldn computation on next page.

Computation of Ldn

Period of 24-Hour Day (1=included, 0=not)		Sound Power Breakdown by Period of Day	
Day	Night	Day	Night
0	1	0	10,492,629
0	1	0	10,492,131
0	1	0	10,492,629
0	1	0	10,500,264
0	1	0	10,543,195
0	1	0	10,809,596
0	1	0	10,622,108
1	0	10,608,790	0
1	0	10,593,779	0
1	0	10,573,081	0
1	0	10,553,928	0
1	0	10,739,905	0
1	0	10,622,108	0
1	0	10,564,077	0
1	0	17,883,854	0
1	0	10,648,580	0
1	0	10,739,905	0
1	0	10,733,779	0
1	0	18,056,528	0
1	0	11,984,313	0
1	0	10,543,195	0
1	0	10,523,233	0
0	1	0	10,509,656
0	1	0	10,495,871

Sum of Sound Power during Period wo/penalty	175,369,054	94,958,080
Log Factor for Penalty (i.e., 10*log(x))	1	10
Sound Power during Period with penalty	175,369,054	949,580,800

Total Daily Sound Power, with penalties	1,124,949,854
Hours per Day	24
Average Hourly Sound Power, with penalties	46,872,911
Ldn	76.7

Notes:

Computation of the CNEL based on 1-hour Leq measurements for each hour of a day are based on equation 2-27 on pg. 2-57 of Caltrans 2009.

Computation of the Ldn based on 1-hour Leq measurements for each hour of a day are based on equation 2-26 on pg. 2-56 of Caltrans 2009.

Log factors for the Ldn and CNEL penalties are provided in Table 2-12 on pg. 2-52 of Caltrans 2009.

Source:

California Deaprtment of Transportation (Caltrans), Divisiong of Environmental Analysis. 2009 (November). *2009 Technical Noise Supplement* . Sacramento, CA. Available: <http://www.dot.ca.gov/hq/env/noise/>. Accessed September 24, 2010.

Existing Noise Combined with Utility Plant Noise @ Madera Vista

Hourly Leq Noise Level by Noise Source	Existing Measured Noise Levels	Utility Plant Noise Levels	Combined Hourly Leq	Difference
Hour of Day				
0:00	42.1	73.3	73.3	31.2
1:00	42.7	73.3	73.3	30.6
2:00	43.4	73.3	73.3	29.9
3:00	42.4	73.3	73.3	30.9
4:00	45.7	73.3	73.3	27.6
5:00	49.1	73.3	73.3	24.2
6:00	49.8	73.3	73.3	23.5
7:00	49.4	73.3	73.3	23.9
8:00	50.9	73.3	73.3	22.4
9:00	50.3	73.3	73.3	23.0
10:00	49.3	73.3	73.3	24.0
11:00	59.6	73.3	73.5	13.9
12:00	54.6	73.3	73.4	18.8
13:00	48.4	73.3	73.3	24.9
14:00	56.9	73.3	73.4	16.5
15:00	50.6	73.3	73.3	22.7
16:00	51.5	73.3	73.3	21.8
17:00	53.6	73.3	73.3	19.7
18:00	59.8	73.3	73.5	13.7
19:00	53.6	73.3	73.3	19.7
20:00	51.5	73.3	73.3	21.8
21:00	47.7	73.3	73.3	25.6
22:00	46.3	73.3	73.3	27.0
23:00	44.0	73.3	73.3	29.3

Notes

Existing Noise level values are shown in Appendix X, Long-term Noise Measurement Summary worksheet

Parking Lot CNEL Calculation

KEY: Orange cells are for input.
Grey cells are intermediate calculations performed by the model.
Green cells are data to present in a written analysis (output).

Measurement Site: Madera Vista
Measurement Date: May 3rd 2022
Project Name: Temecula Valley Hospital Master Plan

Computation of CNEL

Hour of Day (military time)	Sound Level Leq (dBA)	Sound Power =10*Log(dBA/10)	Period of 24-Hour Day (1=included, 0=not)			Sound Power Breakdown by Period of Day		
			Day	Evening	Night	Day	Evening	Night
0:00	73.3	21,385,099	0	0	1	0	0	21,385,099
1:00	73.3	21,387,502	0	0	1	0	0	21,387,502
2:00	73.3	21,390,759	0	0	1	0	0	21,390,759
3:00	73.3	21,386,259	0	0	1	0	0	21,386,259
4:00	73.3	21,406,035	0	0	1	0	0	21,406,035
5:00	73.3	21,450,164	0	0	1	0	0	21,450,164
6:00	73.3	21,464,380	0	0	1	0	0	21,464,380
7:00	73.3	21,455,977	1	0	0	21,455,977	0	0
8:00	73.3	21,491,908	1	0	0	21,491,908	0	0
9:00	73.3	21,476,033	1	0	0	21,476,033	0	0
10:00	73.3	21,453,995	1	0	0	21,453,995	0	0
11:00	73.5	22,280,892	1	0	0	22,280,892	0	0
12:00	73.4	21,657,284	1	0	0	21,657,284	0	0
13:00	73.3	21,438,064	1	0	0	21,438,064	0	0
14:00	73.4	21,858,660	1	0	0	21,858,660	0	0
15:00	73.3	21,483,696	1	0	0	21,483,696	0	0
16:00	73.3	21,510,135	1	0	0	21,510,135	0	0
17:00	73.3	21,597,968	1	0	0	21,597,968	0	0
18:00	73.5	22,323,874	1	0	0	22,323,874	0	0
19:00	73.3	21,597,968	0	1	0	0	21,597,968	0
20:00	73.3	21,510,135	0	1	0	0	21,510,135	0
21:00	73.3	21,427,766	0	1	0	0	21,427,766	0
22:00	73.3	21,411,539	0	0	1	0	0	21,411,539
23:00	73.3	21,394,000	0	0	1	0	0	21,394,000
Sum of Sound Power during Period wo/penalty						260,028,487	64,535,868	192,675,737
Log Factor for CNEL Penalty (i.e., 10*log(x))						1	3	10
Sound Power during Period with penalty						260,028,487	193,607,605	1,926,757,375

Total Daily Sound Power, with penalties	2,380,393,466
Hours per Day	24
Average Hourly Sound Power, with penalties	99,183,061
CNEL	80.0

Ldn computation on next page.

Computation of Ldn

Period of 24-Hour Day (1=included, 0=not)		Sound Power Breakdown by Period of Day	
Day	Night	Day	Night
0	1	0	21,385,099
0	1	0	21,387,502
0	1	0	21,390,759
0	1	0	21,386,259
0	1	0	21,406,035
0	1	0	21,450,164
0	1	0	21,464,380
1	0	21,455,977	0
1	0	21,491,908	0
1	0	21,476,033	0
1	0	21,453,995	0
1	0	22,280,892	0
1	0	21,657,284	0
1	0	21,438,064	0
1	0	21,858,660	0
1	0	21,483,696	0
1	0	21,510,135	0
1	0	21,597,968	0
1	0	22,323,874	0
1	0	21,597,968	0
1	0	21,510,135	0
1	0	21,427,766	0
0	1	0	21,411,539
0	1	0	21,394,000

Sum of Sound Power during Period wo/penalty	324,564,355	192,675,737
Log Factor for Penalty (i.e., 10*log(x))	1	10
Sound Power during Period with penalty	324,564,355	1,926,757,375

Total Daily Sound Power, with penalties	2,251,321,730
Hours per Day	24
Average Hourly Sound Power, with penalties	93,805,072
Ldn	79.7

Notes:

Computation of the CNEL based on 1-hour Leq measurements for each hour of a day are based on equation 2-27 on pg. 2-57 of Caltrans 2009.

Computation of the Ldn based on 1-hour Leq measurements for each hour of a day are based on equation 2-26 on pg. 2-56 of Caltrans 2009.

Log factors for the Ldn and CNEL penalties are provided in Table 2-12 on pg. 2-52 of Caltrans 2009.

Source:

California Deaprtment of Transportation (Caltrans), Divisiong of Environmental Analysis. 2009 (November). *2009 Technical Noise Supplement* . Sacramento, CA. Available: <http://www.dot.ca.gov/hq/env/noise/>. Accessed September 24, 2010.

Existing Noise Combined with Utility Plant Noise @ 30955 De Portola

Hourly Leq Noise Level by Noise Source	Existing Measured Noise Levels	Utility Plant Noise Levels	Combined Hourly Leq	Difference
Hour of Day				
0:00	43.4	66.9	66.9	23.5
1:00	43.3	66.9	66.9	23.6
2:00	43.4	66.9	66.9	23.5
3:00	44.7	66.9	66.9	22.2
4:00	48.6	66.9	67.0	18.4
5:00	55.3	66.9	67.2	11.9
6:00	51.8	66.9	67.0	15.2
7:00	51.4	66.9	67.0	15.6
8:00	50.9	66.9	67.0	16.1
9:00	50.1	66.9	67.0	16.9
10:00	49.2	66.9	67.0	17.8
11:00	54.3	66.9	67.1	12.8
12:00	51.8	66.9	67.0	15.2
13:00	49.7	66.9	67.0	17.3
14:00	68.7	66.9	70.9	2.2
15:00	52.5	66.9	67.1	14.6
16:00	54.3	66.9	67.1	12.8
17:00	54.2	66.9	67.1	12.9
18:00	68.8	66.9	71.0	2.2
19:00	61.8	66.9	68.1	6.3
20:00	48.6	66.9	67.0	18.4
21:00	47.2	66.9	66.9	19.7
22:00	45.9	66.9	66.9	21.0
23:00	44.0	66.9	66.9	22.9

Notes

Existing Noise level values are shown in Appendix X, Long-term Noise Measurement Summary worksheet

Parking Lot CNEL Calculation

KEY: Orange cells are for input.
Grey cells are intermediate calculations performed by the model.
Green cells are data to present in a written analysis (output).

Measurement Site: Location 2: 30955 De Portola Road
Measurement Date: May 3rd 2022
Project Name: Temecula Valley Hospital Master Plan

Hour of Day (military time)	Sound Level Leq (dBA)	Sound Power =10*Log(dBA/10)	Computation of CNEL: Period of 24-Hour Day (1=included, 0=not) Day	Evening	Night	Sound Power Breakdown by Period of Day Day	Evening	Night
0:00	66.9	4,917,254	0	0	1	0	0	4,917,254
1:00	66.9	4,916,756	0	0	1	0	0	4,916,756
2:00	66.9	4,917,254	0	0	1	0	0	4,917,254
3:00	66.9	4,924,889	0	0	1	0	0	4,924,889
4:00	67.0	4,967,820	0	0	1	0	0	4,967,820
5:00	67.2	5,234,221	0	0	1	0	0	5,234,221
6:00	67.0	5,046,733	0	0	1	0	0	5,046,733
7:00	67.0	5,033,415	1	0	0	5,033,415	0	0
8:00	67.0	5,018,404	1	0	0	5,018,404	0	0
9:00	67.0	4,997,706	1	0	0	4,997,706	0	0
10:00	67.0	4,978,553	1	0	0	4,978,553	0	0
11:00	67.1	5,164,530	1	0	0	5,164,530	0	0
12:00	67.0	5,046,733	1	0	0	5,046,733	0	0
13:00	67.0	4,988,702	1	0	0	4,988,702	0	0
14:00	70.9	12,308,479	1	0	0	12,308,479	0	0
15:00	67.1	5,073,205	1	0	0	5,073,205	0	0
16:00	67.1	5,164,530	1	0	0	5,164,530	0	0
17:00	67.1	5,158,403	1	0	0	5,158,403	0	0
18:00	71.0	12,481,152	1	0	0	12,481,152	0	0
19:00	68.1	6,408,938	0	1	0	0	6,408,938	0
20:00	67.0	4,967,820	0	1	0	0	4,967,820	0
21:00	66.9	4,947,857	0	1	0	0	4,947,857	0
22:00	66.9	4,934,281	0	0	1	0	0	4,934,281
23:00	66.9	4,920,496	0	0	1	0	0	4,920,496
Sum of Sound Power during Period wo/penalty						75,413,812	16,324,616	44,779,704
Log Factor for CNEL Penalty (i.e., 10*log(x))						1	3	10
Sound Power during Period with penalty						75,413,812	48,973,847	447,797,042

Total Daily Sound Power, with penalties	572,184,702
Hours per Day	24
Average Hourly Sound Power, with penalties	23,841,029
CNEL	73.8

Ldn computation on next page.

Computation of Ldn

Period of 24-Hour Day (1=included, 0=not)		Sound Power Breakdown by Period of Day	
Day	Night	Day	Night
0	1	0	4,917,254
0	1	0	4,916,756
0	1	0	4,917,254
0	1	0	4,924,889
0	1	0	4,967,820
0	1	0	5,234,221
0	1	0	5,046,733
1	0	5,033,415	0
1	0	5,018,404	0
1	0	4,997,706	0
1	0	4,978,553	0
1	0	5,164,530	0
1	0	5,046,733	0
1	0	4,988,702	0
1	0	12,308,479	0
1	0	5,073,205	0
1	0	5,164,530	0
1	0	5,158,403	0
1	0	12,481,152	0
1	0	6,408,938	0
1	0	4,967,820	0
1	0	4,947,857	0
0	1	0	4,934,281
0	1	0	4,920,496

Sum of Sound Power during Period wo/penalty	91,738,428	44,779,704
Log Factor for Penalty (i.e., 10*log(x))	1	10
Sound Power during Period with penalty	91,738,428	447,797,042

Total Daily Sound Power, with penalties	539,535,470
Hours per Day	24
Average Hourly Sound Power, with penalties	22,480,645
Ldn	73.5

Notes:

Computation of the CNEL based on 1-hour Leq measurements for each hour of a day are based on equation 2-27 on pg. 2-57 of Caltrans 2009.

Computation of the Ldn based on 1-hour Leq measurements for each hour of a day are based on equation 2-26 on pg. 2-56 of Caltrans 2009.

Log factors for the Ldn and CNEL penalties are provided in Table 2-12 on pg. 2-52 of Caltrans 2009.

Source:

California Deaprtment of Transportation (Caltrans), Divisiong of Environmental Analysis. 2009 (November). *2009 Technical Noise Supplement* . Sacramento, CA. Available: <http://www.dot.ca.gov/hq/env/noise/>. Accessed September 24, 2010.

Parking Lot CNEL Calculation

KEY: Orange cells are for input.
Grey cells are intermediate calculations performed by the model.
Green cells are data to present in a written analysis (output).

Measurement Site: Location 2: 30955 De Portola Road
Measurement Date: May 3rd 2022
Project Name: Temecula Valley Hospital Master Plan

Computation of CNEL

Hour of Day (military time)	Sound Level Leq (dBA)	Sound Power =10*Log(dBA/10)	Period of 24-Hour Day (1=included, 0=not)			Sound Power Breakdown by Period of Day		
			Day	Evening	Night	Day	Evening	Night
0:00	75.0	31,622,777	0	0	1	0	0	31,622,777
1:00	75.0	31,622,777	0	0	1	0	0	31,622,777
2:00	75.0	31,622,777	0	0	1	0	0	31,622,777
3:00	75.0	31,622,777	0	0	1	0	0	31,622,777
4:00	75.0	31,622,777	0	0	1	0	0	31,622,777
5:00	75.0	31,622,777	0	0	1	0	0	31,622,777
6:00	75.0	31,622,777	0	0	1	0	0	31,622,777
7:00	75.0	31,622,777	1	0	0	31,622,777	0	0
8:00	75.0	31,622,777	1	0	0	31,622,777	0	0
9:00	75.0	31,622,777	1	0	0	31,622,777	0	0
10:00	75.0	31,622,777	1	0	0	31,622,777	0	0
11:00	75.0	31,622,777	1	0	0	31,622,777	0	0
12:00	75.0	31,622,777	1	0	0	31,622,777	0	0
13:00	75.0	31,622,777	1	0	0	31,622,777	0	0
14:00	75.0	31,622,777	1	0	0	31,622,777	0	0
15:00	75.0	31,622,777	1	0	0	31,622,777	0	0
16:00	75.0	31,622,777	1	0	0	31,622,777	0	0
17:00	75.0	31,622,777	1	0	0	31,622,777	0	0
18:00	75.0	31,622,777	1	0	0	31,622,777	0	0
19:00	75.0	31,622,777	0	1	0	0	31,622,777	0
20:00	75.0	31,622,777	0	1	0	0	31,622,777	0
21:00	75.0	31,622,777	0	1	0	0	31,622,777	0
22:00	75.0	31,622,777	0	0	1	0	0	31,622,777
23:00	75.0	31,622,777	0	0	1	0	0	31,622,777

Sum of Sound Power during Period wo/penalty	379,473,319	94,868,330	284,604,989
Log Factor for CNEL Penalty (i.e., 10*log(x))	1	3	10
Sound Power during Period with penalty	379,473,319	284,604,989	2,846,049,894

Total Daily Sound Power, with penalties	3,510,128,203
Hours per Day	24
Average Hourly Sound Power, with penalties	146,255,342
CNEL	81.7

Computation of Ldn

Ldn computation on next page.

Period of 24-Hour Day (1=included, 0=not)		Sound Power Breakdown by Period of Day	
Day	Night	Day	Night
0	1	0	31,622,777
0	1	0	31,622,777
0	1	0	31,622,777
0	1	0	31,622,777
0	1	0	31,622,777
0	1	0	31,622,777
0	1	0	31,622,777
1	0	31,622,777	0
1	0	31,622,777	0
1	0	31,622,777	0
1	0	31,622,777	0
1	0	31,622,777	0
1	0	31,622,777	0
1	0	31,622,777	0
1	0	31,622,777	0
1	0	31,622,777	0
1	0	31,622,777	0
1	0	31,622,777	0
1	0	31,622,777	0
1	0	31,622,777	0
1	0	31,622,777	0
1	0	31,622,777	0
1	0	31,622,777	0
0	1	0	31,622,777
0	1	0	31,622,777

Sum of Sound Power during Period wo/penalty	474,341,649	284,604,989
Log Factor for Penalty (i.e., 10*log(x))	1	10
Sound Power during Period with penalty	474,341,649	2,846,049,894

Total Daily Sound Power, with penalties	3,320,391,543
Hours per Day	24
Average Hourly Sound Power, with penalties	138,349,648
Ldn	81.4

Notes:

Computation of the CNEL based on 1-hour Leq measurements for each hour of a day are based on equation 2-27 on pg. 2-57 of Caltrans 2009.

Computation of the Ldn based on 1-hour Leq measurements for each hour of a day are based on equation 2-26 on pg. 2-56 of Caltrans 2009.

Log factors for the Ldn and CNEL penalties are provided in Table 2-12 on pg. 2-52 of Caltrans 2009.

Source:

California Deaprtment of Transportation (Caltrans), Divisiong of Environmental Analysis. 2009 (November). *2009 Technical Noise Supplement* . Sacramento, CA. Available: <http://www.dot.ca.gov/hq/env/noise/>. Accessed September 24, 2010.

Addition of Noise Levels from Multiple Sources at a Discrete Receptor

OBJECTIVE: This work sheet is designed to estiamte the combined level of noise exposure at a single discrete receptor from multiple point sources.

KEY: Orange cells are for input.
Grey cells are intermediate calculations performed by the model.
Green cells are data to present in a written analysis (output).

Receptor Name: **Utility Plant to 31450 De Portola Road**

STEP 1: Identify the noise sources and enter the reference noise levels (dBA and distance).
STEP 2: Select the ground type (hard or soft), and enter the source and receiver heights.
STEP 3: Select the distance to the receptor and the reduction provided by any intervening barrier.

Step 1. Step 2. Step 3.

Noise Source	Reference Noise Level			Attenuation Characteristics				Attenuated Noise Level at Receptor			
	Reference Noise Level (dBA)	@	Reference Distance (ft)	Ground Type (soft/hard)	Source Height (ft)	Receiver Height (ft)	Ground Factor	Noise Level (dBA)	@	Distance to Receptor (ft)	Reduction Provided by Barrier, if any (dBA)
HVAC CNEL	81.7	@	50	hard	8	5	0.00	72.2	@	150	
				hard	8	5	0.00				
				hard	8	5	0.00				
							0.66				
							0.66				
							0.66				

Combined level of noise exposure at receptor from all noise sources (dBA): **72.2**

Notes:

1 - Computation of the attenuated noise level is based on the equation presented on pg. 176 and 177 of FTA 2018.

2 - Computation of the ground factor is based on the equation presentd in Table 4-26 on pg. 86 of FTA 2018, where the distance of the reference noise leve can be adjusted and the usage factor is not applied (i.e., the usage factor is equal to 1).

3 - Summation of noise levels from different stationary noise sources at the same receptor is based on the equation presented on page 201 of FTA 2018.

Sources:

Federal Transit Association (FTA). 2018 (September). Transit Noise and Vibration Impact Assessment. Washington, D.C. Available: <http://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf>Accessed:

Sources:

Federal Transit Association (FTA). 2006 (May). Transit Noise and Vibration Impact Assessment. FTA-VA-90-1003-06. Washington, D.C. Available: <http://www.fta.dot.gov/documents/FTA_Noise_and_Vibration_Manual.pdf>. Accessed: March 5, 2020.

Equipment Description	Acoustical Usage Factor (%)	Spec 721.560 Lmax @ 50ft (dBA slow)	Actual Measured Lmax @ 50ft (dBA slow)	No. of Actual Data Samples (count)	Spec 721.560 LmaxCalc	Spec 721.560 Leq	Distance	Actual Measured LmaxCalc	Actual Measured Leq
Auger Drill Rig	20	85	84	36	79.0	72.0	100	78.0	71.0
Backhoe	40	80	78	372	74.0	70.0	100	72.0	68.0
Bar Bender	20	80	na	0	74.0	67.0	100		
Blasting	na	94	na	0	88.0		100		
Boring Jack Power Unit	50	80	83	1	74.0	71.0	100	77.0	74.0
Chain Saw	20	85	84	46	79.0	72.0	100	78.0	71.0
Clam Shovel (dropping)	20	93	87	4	87.0	80.0	100	81.0	74.0
Compactor (ground)	20	80	83	57	74.0	67.0	100	77.0	70.0
Compressor (air)	40	80	78	18	74.0	70.0	100	72.0	68.0
Concrete Batch Plant	15	83	na	0	77.0	68.7	100		
Concrete Mixer Truck	40	85	79	40	79.0	75.0	100	73.0	69.0
Concrete Pump Truck	20	82	81	30	76.0	69.0	100	75.0	68.0
Concrete Saw	20	90	90	55	84.0	77.0	100	84.0	77.0
Crane	16	85	81	405	79.0	71.0	100	75.0	67.0
Dozer	40	85	82	55	79.0	75.0	100	76.0	72.0
Drill Rig Truck	20	84	79	22	78.0	71.0	100	73.0	66.0
Drum Mixer	50	80	80	1	74.0	71.0	100	74.0	71.0
Dump Truck	40	84	76	31	78.0	74.0	100	70.0	66.0
Excavator	40	85	81	170	79.0	75.0	100	75.0	71.0
Flat Bed Truck	40	84	74	4	78.0	74.0	100	68.0	64.0
Front End Loader	40	80	79	96	74.0	70.0	100	73.0	69.0
Generator	50	82	81	19	76.0	73.0	100	75.0	72.0
Generator (<25KVA, VMS s	50	70	73	74	64.0	61.0	100	67.0	64.0
Gradall	40	85	83	70	79.0	75.0	100	77.0	73.0
Grader	40	85	na	0	79.0	75.0	100		
Grapple (on Backhoe)	40	85	87	1	79.0	75.0	100	81.0	77.0
Horizontal Boring Hydr. Jac	25	80	82	6	74.0	68.0	100	76.0	70.0
Hydra Break Ram	10	90	na	0	84.0	74.0	100		
Impact Pile Driver	20	95	101	11	89.0	82.0	100	95.0	88.0
Jackhammer	20	85	89	133	79.0	72.0	100	83.0	76.0
Man Lift	20	85	75	23	79.0	72.0	100	69.0	62.0
Mounted Impact Hammer (	20	90	90	212	84.0	77.0	100	84.0	77.0
Pavement Scarafier	20	85	90	2	79.0	72.0	100	84.0	77.0
Paver	50	85	77	9	79.0	76.0	100	71.0	68.0
Pickup Truck	40	55	75	1	49.0	45.0	100	69.0	65.0
Pneumatic Tools	50	85	85	90	79.0	76.0	100	79.0	76.0
Pumps	50	77	81	17	71.0	68.0	100	75.0	72.0
Refrigerator Unit	100	82	73	3	76.0	76.0	100	67.0	67.0
Rivit Buster/chipping gun	20	85	79	19	79.0	72.0	100	73.0	66.0
Rock Drill	20	85	81	3	79.0	72.0	100	75.0	68.0
Roller	20	85	80	16	79.0	72.0	100	74.0	67.0
Sand Blasting (Single Nozzl	20	85	96	9	79.0	72.0	100	90.0	83.0
Scraper	40	85	84	12	79.0	75.0	100	78.0	74.0
Shears (on backhoe)	40	85	96	5	79.0	75.0	100	90.0	86.0
Slurry Plant	100	78	78	1	72.0	72.0	100	72.0	72.0
Slurry Trenching Machine	50	82	80	75	76.0	73.0	100	74.0	71.0
Soil Mix Drill Rig	50	80	na	0	74.0	71.0	100		
Tractor	40	84	na	0	78.0	74.0	100		
Vacuum Excavator (Vac-tru	40	85	85	149	79.0	75.0	100	79.0	75.0
Vacuum Street Sweeper	10	80	82	19	74.0	64.0	100	76.0	66.0
Ventilation Fan	100	85	79	13	79.0	79.0	100	73.0	73.0
Vibrating Hopper	50	85	87	1	79.0	76.0	100	81.0	78.0
Vibratory Concrete Mixer	20	80	80	1	74.0	67.0	100	74.0	67.0
Vibratory Pile Driver	20	95	101	44	89.0	82.0	100	95.0	88.0
Warning Horn	5	85	83	12	79.0	66.0	100	77.0	64.0
Welder / Torch	40	73	74	5	67.0	63.0	100	68.0	64.0

Source:
FHWA Roadway Construction Noise Model, January 2006. Table 9.1
U.S. Department of Transportation
CA/T Construction Spec. 721.560

Appendix G

Helipad Noise Analysis Technical Report

HELIPAD NOISE ANALYSIS TECHNICAL REPORT TEMECULA VALLEY HOSPITAL MASTER PLAN UPDATE PROJECT

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MAY 2022

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EXECUTIVE SUMMARY

The Temecula Valley Hospital Master Plan Update Helipad Noise Assessment (Noise Report) provides the City of Temecula (City) with an evaluation of potential noise impacts related to helicopter operations associated with the Temecula Valley Hospital Master Plan Update (Proposed Project) compared to the noise impacts of the approved project as set forth in the currently adopted Master Plan. This Noise Report describes the existing environment in the Master Plan Update area and estimates future noise levels at surrounding land uses resulting from helipad operation. The study discusses applicable federal, State, and local noise regulations; monitoring data; applicable noise thresholds; the methodology used to analyze potential noise impacts; and the modeled on-site uses. The finding of the analyses are summarized at a high-level as follows, with additional discussion in the body of the analysis:

- The 2014 Supplemental EIR (2014 SEIR) determined that single event noise levels from helicopter overflights would be significant and unavoidable. Mitigation Measure NOI-1 had been included to provide signage at each end of the horse trail to notice riders of the helistop location and operation, however, this measure would only provide notice and not reduce substantial noise levels generated from helicopter overflight. Consequently, helicopter-generated CNEL at each of the measurement locations at the residential area would not experience a significant increase in noise above ambient as defined by Section 5.1.2 of the Riverside County ALUCP.
- This analysis assessed whether the Master Plan Update would result in any new significant offsite noise impacts compared to the 2014 SEIR. Helicopter noise associated with the Master Plan Update operations would not increase noise levels above established significance thresholds and impacts to off-site receptors would be less than significant. Thus, noise impacts associated with Master Plan Update operations would not result in any new significant noise impacts compared to the 2014 SEIR.

INTRODUCTION

This Noise Report presents the findings of a community noise assessment related to helicopter noise conducted to support the Subsequent Environmental Impact Report (EIR) prepared for the Master Plan Update, located within Riverside County in the City of Temecula.

Under the California Environmental Quality Act (CEQA), when evaluating project changes relative to a previously certified EIR, the additional CEQA analysis will focus on the environmental impacts that result from the newly available project details. The Master Plan Update as currently proposed reflects minor changes and refinements related to Temecula Valley Hospital, as compared to the proposed development evaluated in the currently adopted Master Plan. This report analyzes the potential community noise impacts from helicopter operations of the Master Plan Update based generally on the incremental differences between the Approved Project and the proposed Master Plan Update. This report has been prepared pursuant to the requirements of the City and CEQA.

MASTER PLAN UPDATE PROJECT DESCRIPTION

The Temecula Valley Hospital is located at 31700 Temecula Parkway in the City of Temecula. Regional access to the Project site is provided by Interstate-15 (I-15), located two miles to the north and Temecula Parkway (refer to **Figure 1: Regional Map**). The 35.31-acre site is approximately 720 feet west of Margarita Road, 420 feet south of De Portola Road, and is bordered to the south by Temecula Parkway (also named Highway 79) and by Dona Lynora to the west (refer to **Figure 2: Project Site Location**).

The Project is currently developed with a hospital building, storage building, helipad, onsite roadways and access drives, drainage infrastructure, and stormwater quality basins (refer to **Figure 3: Existing Conditions**). Approximately 86,072 square feet (SF) of the project site is comprised of building footprint (5.5 percent), 33,481 SF of the project site is comprised of parking area footprint (21.4 percent), and 1,102,552 SF of the project site is comprised of landscaped area (70.6 percent).

The Master Plan Update would result in full buildout of the project site. The existing 237,305-square-foot hospital building and 5,180-square-foot storage building would be maintained onsite. In addition, the existing onsite backbone circulation system and access driveways to Temecula Parkway and De Portola Road would remain unchanged. The remaining undeveloped areas, which were previously graded as part of Phase I, would be developed in three additional phases. Specific timing for the development of Phases II to IV has not been established and is dependent upon demand. The existing onsite parking lots would be relocated as phasing progresses. The existing interim helipad would be relocated to the roof of the proposed parking structure located west of the existing hospital building (refer to **Figure 4: Proposed Master Plan Update**). The new helipad location on the roof of the proposed parking structure would utilize a new east-west arrival/departure path as compared to the existing at-grade helipad location to minimize noise impacts to surrounding land uses by directing air traffic away from the existing residential uses to the north along De Portola Road, to the south along Temecula Parkway and to the east along Margarita Road (refer to **Figure 5: Proposed Flight Path**). The volume of patient flights is not expected to be affected by the Master Plan Update.

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SOURCE: Temecula Valley Hospital Master Plan Update Draft - 2022

FIGURE **1**

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Regional Map

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SOURCE: Google Earth - 2022

FIGURE **2**

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Project Site Location

349-001-22



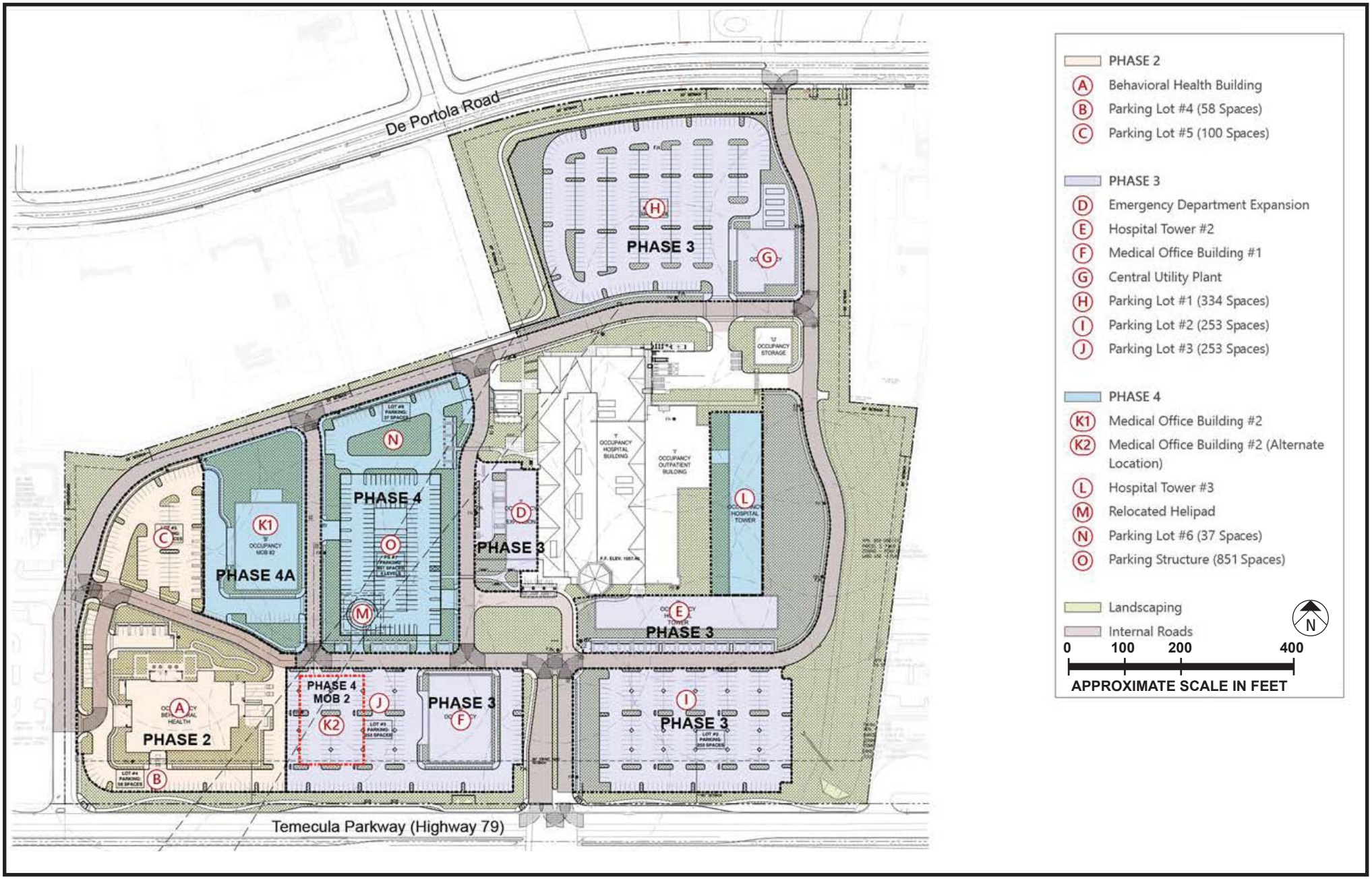
SOURCE: Temecula Valley Hospital Master Plan Update Draft - 2022

FIGURE **3**

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Existing Conditions

349-001-22



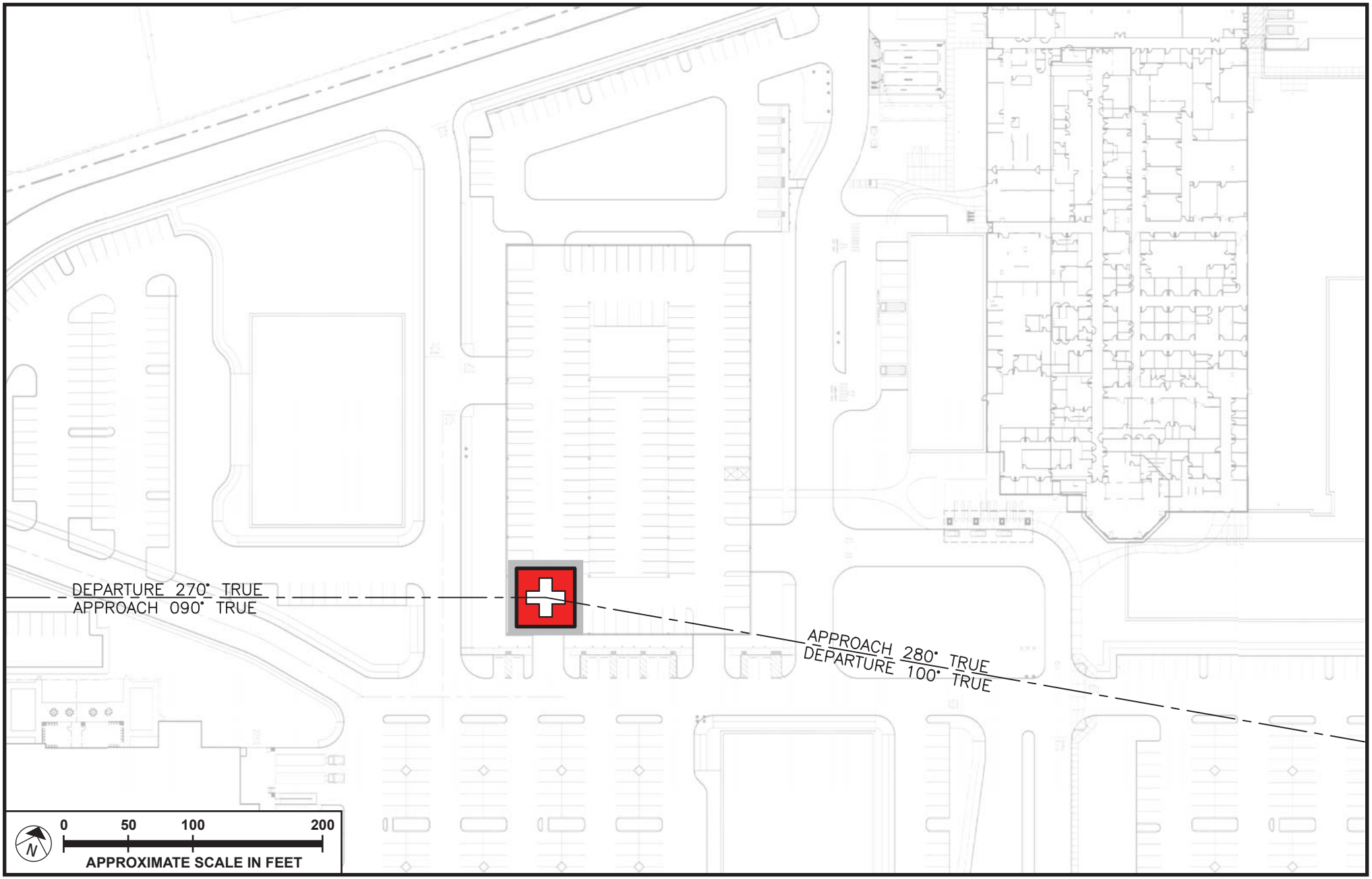
SOURCE: Temecula Valley Hospital Master Plan Update Draft - 2022

FIGURE **4**

Meridian Consultants

Proposed Master Plan Update

349-001-22



SOURCE: TVH-5 Flight Path Exhibit 2022-03-22b - 2022

FIGURE **5**

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Proposed Flight Path

349-001-22

SUMMARY OF STATE-CERTIFIED EIR ANALYSIS OF NOISE AND MITIGATION

Summary of State-Certified EIR Analysis of Helipad Noise

The City of Temecula approved development of the Temecula Regional Hospital and certified the Temecula Regional Hospital Environmental Impact Report (EIR) in 2006 and a Supplemental EIR in 2008 (2006/2008 EIR). A General Plan Amendment, Zone Change (Planned Development Overlay), Development Plan, Conditional Use Permit, and Tentative Parcel Map were required to allow the development of the Temecula Regional Hospital.

The 2006/2008 EIR evaluated development of the Temecula Regional Hospital over five phases, which included a helipad. Another Supplemental EIR was certified in November 2014 to revise the location of the proposed helipad and develop a new building for storage of non-hazardous hospital supplies (increasing the total building square footage to 571,160 square feet). The Temecula Regional Hospital, as described in the 2006/2008 EIR and including revisions through 2014, is herein referred to as the "currently approved project."

The current approved project includes two helistop locations, an interim location for use during preliminary project phases and a permanent location on the roof of a future hospital tower, and have two flight paths that are designed in compliance with FAA and Caltrans Division of Aeronautics requirements, as shown in **Figure 6: Approved Project Helistop Location and Flight Path**. The interim helistop location is located at the ground level within the landscaped area in the western portion of the project site toward the professional office and commercial uses to the west. This location is approximately 300 feet northwest of Rancho Pueblo Road and 450 feet north of Temecula Parkway. Currently, the interim location has been the primary helistop at the Hospital as the permanent location helistop has not been constructed.

The currently approved project determined that helicopter-generated CNEL at each of the measurement locations at the residential area would not experience a significant increase in noise above ambient as defined by Section 5.1.2 of the Riverside County ALUCP. However, the State-Certified EIR concluded that single event noise levels from helicopter overflights would be significant and unavoidable.

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Figure 6 Approved Project Helistop Locations and Flight Path

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State-Certified EIR Noise Mitigation Measures

The State-certified EIR describes noise-related mitigation measures relevant to the State-certified EIR's noise impact analysis, including mitigation measures applicable to helipad operations at Temecula Regional Hospital. The State-certified EIR identified Mitigation Measure (MM) NOI-1, however, this measure would only provide notice and not reduce substantial noise levels generated from helicopter overflight. Prior to operation of the interim helistop, MM NOI-1 would require the Temecula Valley Hospital to develop and install signage at both ends of the portion of the equestrian trail that is adjacent to the hospital site. The signs would notice riders of the helistop location and its operation at the hospital. The sign would include helicopter noise information and warnings to equestrian users. The Temecula Valley Hospital would be responsible for the design, preparation, and installation of the sign, as well as all related costs.

BACKGROUND INFORMATION REGARDING NOISE

Noise Descriptors

Noise levels are measured using a variety of scientific metrics. As a result of extensive research into the characteristics of noise and human response, standard noise descriptors have been developed for noise exposure analyses. All noise levels provided in this Noise Report are for outdoor conditions, unless otherwise stated specifically to be interior noise levels.

A-Weighted Sound Pressure Level (dBA): The decibel (dB) is a unit used to describe sound pressure level. When expressed in dBA, the sound has been filtered to reduce the effect of very low and very high frequency sounds, much as the human ear filters sound frequencies. Without this filtering, calculated and measured sound levels would include events that the human ear cannot hear (e.g., dog whistles and low-frequency sounds, such as the groaning sounds emanating from large buildings with changes in temperature and wind). With A-weighting, calculations and sound-monitoring equipment approximate the sensitivity of the human ear to sounds of different frequencies.

Maximum Noise Level (Lmax): Lmax is the maximum or peak sound level during a noise event. The metric accounts only for the instantaneous peak intensity of the sound, and not for the duration of the event. As a vehicle passes by an observer, the sound level increases to a maximum level and then decreases. Some sound level meters measure and record the maximum or Lmax level.

Sound Exposure Level (SEL): SEL, expressed in dBA, is a time-integrated measure, expressed in decibels, of the sound energy of a single noise event at a reference duration of 1 second. The sound level is integrated over the period that the level exceeds a threshold. Therefore, SEL accounts for both the maximum sound level and the duration of the sound The SEL for a particular aircraft noise event is a numerically higher value than the Lmax for the same event. This is because the SEL consolidates the energy of the entire noise event into a reference duration of one second. The SEL is not "heard", but is a derived value used for calculation of cumulative aircraft noise exposure as defined by the Day-night

average sound level (Ldn). SELs for aircraft noise events depend on the location of the aircraft relative to the noise receptor, the type of operation (landing, takeoff, or cruise), and the type of aircraft.

Equivalent Continuous Noise Level (Leq): Leq is the sound level, expressed in dBA, of a steady sound that has the same A-weighted sound energy as the time-varying sound over the averaging period. Unlike SEL, Leq is the average sound level for a specified time period (e.g., 24 hours, 8 hours, 1 hour). Leq is calculated by integrating the sound energy from all noise events over a given time period and applying a factor for the number of events. Leq can be expressed for any time interval; for example, the Leq representing an averaged level over an 8-hour period would be expressed as Leq(8).

Community Noise Equivalent Level (CNEL): CNEL, expressed in dBA, is a rating of community noise exposure to all sources of sound that differentiates between daytime (7:00 AM to 7:00 PM), evening (7:00 PM to 10:00 PM), and nighttime (10:00 PM to 7:00 AM) noise exposure. CNEL includes penalties applied to noise events occurring after 7:00 PM and before 7:00 AM, when noise is considered more intrusive. The penalized time period is further subdivided into an evening period with an addition of 5 dBA to measured or forecasted noise levels and a nighttime period with an addition of 10 dB to measured or forecasted noise levels. The evening weighting is the only difference between CNEL and day-night average sound level (DNL).

Effects of Noise on Humans

Human response to sound is highly individualized. Annoyance is the most common issue associated with community noise levels. Many factors influence the response to noise including the character of the noise, the variability of the sound level, the presence of tones or impulses, and the time of day of the occurrence. Additionally, non-acoustical factors, such as an individual's opinion of the noise source, the ability to adapt to the noise, the attitude towards the source and those associated with it, and the predictability of the noise, all influence the response to noise. These factors result in the reaction to noise being highly subjective, with the perceived effect of a particular noise varying widely among individuals in a community. The effects of noise can be grouped into three general categories:

- Subjective effects of annoyance, nuisance, dissatisfaction;
- Interference with activities such as speech, sleep, and learning; and
- Physiological effects such as starting hearing loss.

Noise-induced hearing loss usually takes years to develop. Hearing loss is one of the most obvious and easily quantifiable effects of excessive exposure to noise. While the loss may be temporary at first, it can become permanent after continued exposure. When combined with hearing loss associated with aging, the amount of hearing loss directly due to the environment is difficult to quantify. Although the major cause of noise induced hearing loss is occupational, nonoccupational sources may also be a factor.

Noise can mask important sounds and disrupt communication between individuals in a variety of settings. This process can cause anything from a slight irritation to a serious safety hazard, depending on the circumstance. Noise can disrupt face-to-face communication and telephone communication, and the enjoyment of music and television in the home. Interference with communication has proved to be one of the most important components of noise-related annoyance.

Noise-induced sleep interference is one of the critical components of community annoyance. Sound level, frequency distribution, duration, repetition, and variability can make it difficult to fall asleep and may cause momentary shifts in the natural sleep pattern or level of sleep. It can produce short-term effects, with the possibility of more serious effects on health if it continues over long periods.

Annoyance can be defined as the expression of negative feelings resulting from interference with activities, as well as the disruption of one's peace of mind and the enjoyment of one's environment. The consequences of noise-induced annoyance are privately held dissatisfaction, publicly expressed complaints to authorities, and potential adverse health effects, as discussed previously.

Some common sounds on the dBA scale, relative to ordinary conversation, are provided in **Table 1: Common Sounds on the A-Weighted Decibel Scale**. As shown, the relative perceived loudness of sound doubles for each increase of 10 dBA, although a 10 dBA change corresponds to a factor of 10 in relative sound energy. Generally, sounds with differences of 3 dBA or less are not perceived to be noticeably different by most listeners.

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TABLE 1
COMMON SOUNDS ON THE A-WEIGHTED DECIBEL SCALE

Sound	Sound Level (dBA)	Subjective Evaluations
Near Jet Engine	140	Deafening
Threshold of Pain	130	
Rock music, with amplifier	120	
Thunder, snowmobile (operator)	110	Very Loud
Boiler shop, power mower	100	
Orchestral crescendo at 25 feet, noisy kitchen	90	
Busy street	80	Loud
Interior of department store	70	
Ordinary conversation, 3 feet away	60	Moderate
Quiet automobiles at low speed	50	
Average office	40	Faint
City residence	30	
Quiet country residence	20	Very Faint
Rustle of leaves	10	
Threshold of hearing	0	

Source: U.S. Department of Housing and Urban Development, Aircraft Noise Impact – Planning Guidelines for Local Agencies, 1972

Notes:

[1] Continuous exposure above 85 dB is likely to degrade the hearing of most people (hearing protection recommended).

[2] Range of Speech: 50 – 70 dB

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REGULATORY SETTING

Federal Regulations

The Federal Aviation Administration (FAA) regulates noise from aircraft. The Aviation Safety and Noise Abatement Act of 1979 required that the FAA establish a single system for measuring and evaluating noise impacts. The FAA chose the Sound Exposure Level (SEL). The individual values of the SEL for each helicopter takeoff, landing, and flyovers are combined and compared against the community noise levels.

The FAA has adopted 65 dBA DNL (day-night average sound level) as the threshold of significant noise exposure, below which residential uses are compatible, but often shows contours for DNL 65, 70, and 75 dBA noise levels on maps for reference. While DNL is the primary metric FAA uses to determine noise impacts, FAA accepts CNEL in California as the sate adopted the use of CNEL prior to FAA adopting DNL.[1]

Local Regulations

City of Temecula General Plan Noise Element

The City's primary goal with regard to community noise is to minimize the exposure of residents to unhealthful or excessive noise levels to the extent possible. **Figure 7: City of Temecula Noise/Land Use Compatibility Matrix** outlines cumulative noise criteria for outdoor noise. High exterior noise levels are permitted for multiple-family housing than for single-family houses, as multiple-family complexes are generally set back farther from property boundaries, and a more integrated mix of activity (residential and commercial) is often desired near such locations.

Four major issues are addressed in the Noise Element: 1) ensuring the separation of significant noise generators and sensitive receptors including residential areas and schools; 2) noise and vibration transfers between adjacent land uses such as residences located upstairs from nighttime commercial uses in mixed use environments; 3) considering noise in the land use planning process; and 4) minimizing the impacts of transportation-related noise.

The following goals and policies that pertain to noise and vibration are applicable to the Project:

Goal 1 Separate significant noise generators from sensitive receptors

Policy 1.1 Discourage noise sensitive land uses in noisy exterior environments unless measures can be implemented to reduce exterior and interior noise to acceptable levels. Alternatively, encourage fewer sensitive uses in areas adjacent to major noise generators but require sound-appropriate interior working environments.

---

1 FAA, Community Response to Noise, accessed May 2022, https://www.faa.gov/regulations_policies/policy_guidance/noise/community.

Goal 2 Minimize transfer of noise impacts between adjacent land uses.

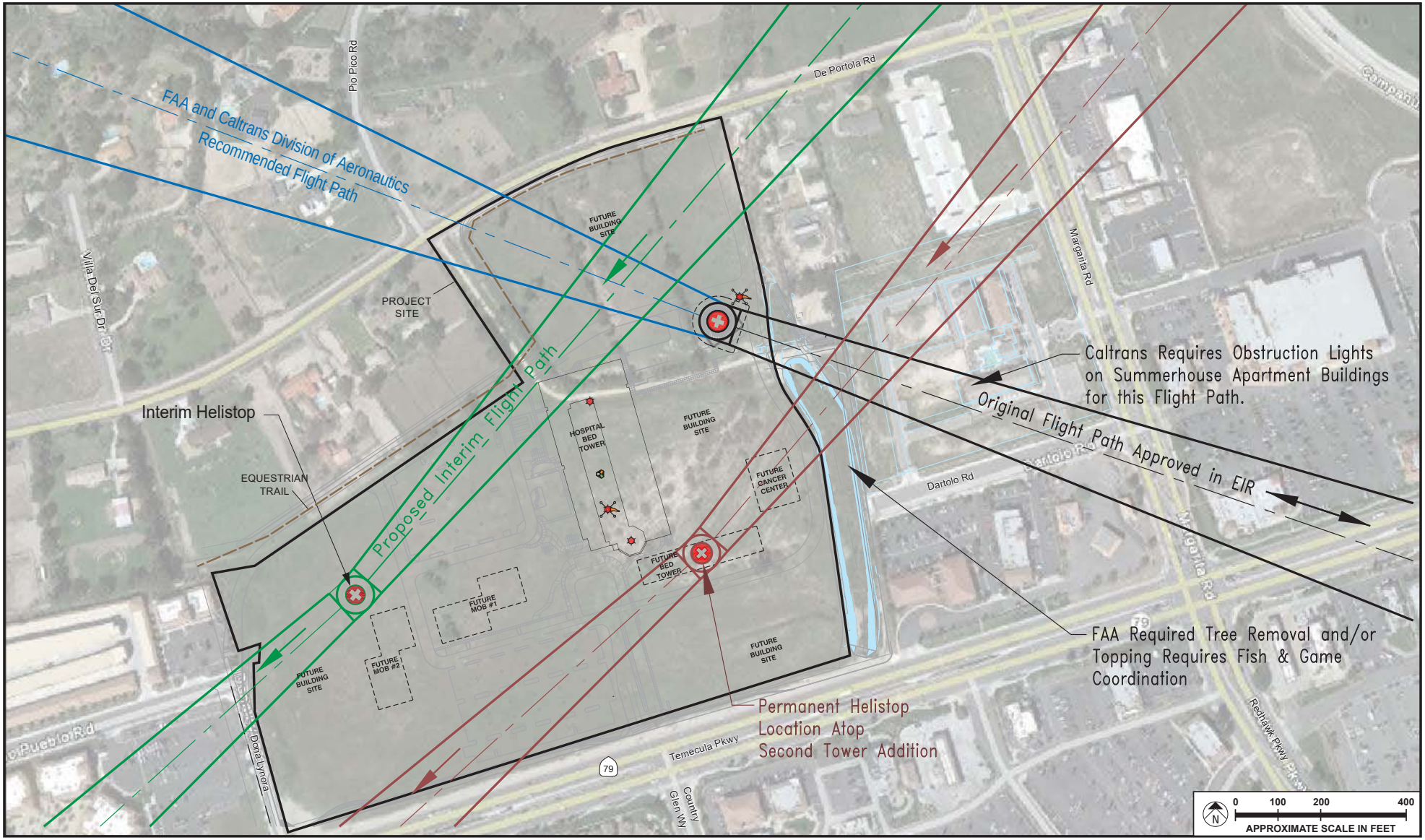
Policy 2.1 Limit the maximum permitted noise levels crossing property lines and impacting adjacent land uses.

Goal 3 Minimize the impact noise levels throughout the community through land use planning.

Policy 3.1 Enforce and maintain acceptable noise limit standards.

Policy 3.4 Evaluate potential noise conflicts for individual sites and projects, and require mitigation of all significant noise impacts as a condition of project approval.

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SOURCE: Temecula Valley Hospital Helistop SEIR - 2022

FIGURE **6**

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Approved Project Helistop Location and Flight Path

349-001-22

City of Temecula Noise Ordinance

The City has adopted the County of Riverside Noise Control Ordinance (No. 457.73) which establishes interior and exterior noise standards for residential areas. The ordinance provides controls for excessive and annoying noise from stationary sources such as industrial plants, pumps, compressors and refrigeration units. In addition, specific noise standards for daytime and nighttime hours are provided.

To ensure that noise produces do not adversely affect sensitive receptors, the City uses land use compatibility standards[2] when planning and making development decisions. **Table 2: Temecula Land Use/Noise Standards** summarizes City noise standards for each land use classification defined in the Land Use Element and expressed on the Land Use Policy Map.

TABLE 2
TEMECULA LAND USE/NOISE STANDARDS

Property Receiving Noise		Maximum Noise Level (Ldn or CNEL, dBA)	
Type of Use	**Land Use Designation**	**Interior**	**Exterior**
Residential	Hillside Rural Very Low Low Low Medium	45	65
	Medium	45	65/70[1]
	High	45	70[1]
Commercial and Office	Neighborhood Community Highway Tourist Service	--	70
	Professional Office	50	70
Light Industrial	Industrial Park	55	75
Public/Institutional;	Schools	50	65
	All others	50	70
Open Space	Vineyards/Agriculture	--	70
	Open Space	--	70/65[2]

Source: City of Temecula Noise Ordinance Section 9.20.040 General Sound Level Standards.

Note:

[1] Maximum exterior noise levels up to 70 dB CNEL are allowed for Multiple-Family Housing.

[2] Where quiet is a basis required for the land use.

[3] Regarding aircraft-related noise, the maximum acceptable exposure for new residential development is 60 dB CNEL.

2 City of Temecula General Plan (2005), Noise Element, Table N-2 Noise/Land Use Compatibility Matrix, accessed December 2021, https://temeculaca.gov/DocumentCenter/View/286/NoisePDF?bidId=#:~:text=For%20new%20residential%20construction%2C%20exterior,to%2045%20dB%20or%20less.&text=The%20City%20has%20adopted%20the,noise%20standards%20for%20residntial%20areas.

EXISTING CONDITIONS

Noise within Riverside County is generated by numerous sources found near places where people live and work. Different types of noise include mobile, stationary, and construction-related, that affect noise-sensitive receptors such as residences, schools, and hospitals.[3] Motor vehicles are the dominant source of continuous noise. Interstate 15, SR -79, Rancho California Road, Jefferson Avenue/Front Street, Winchester Road, and Pechanga Parkway all carry appreciable volumes of commuter traffic. Neighborhoods bordering these roadways are thus subject to loud noise levels. The French Valley Airport is also a source of noise in Temecula. The aircraft mix at this airport includes mostly single-engine aircraft, although some multi-engine aircraft and a small number of business jets and helicopters also use the Airport. Larger aircraft represent a more intrusive noise source. Impacted future uses include office park areas and residential neighborhoods. The Project site is bound by commercial uses to the north; open space to the south; public park and single-family residential uses to the east; and single-family residential uses to the west.

Ambient Noise Levels

To assess the existing noise level environment, five (5) noise level measurements were taken at sensitive receiver locations in the Project study area, and their locations are shown on **Figures 8-12: Noise Monitoring Locations.** The existing ambient noise environment was determined by conducting noise measurements by sensitive receptors that would potentially be impacted by the proposed Project. Noise monitoring was conducted with a Larson Davis 831 Type 1 Sound Level Meter. All noise meters were programmed in "slow" mode to record noise levels in "A" weighted form. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013.

Ambient noise measurements for the 2014 SEIR were collected at the five (5) locations between June 19 and 26, 2014. As shown in **Table 3: Existing Noise Measurements in Project Vicinity**, 24-hour CNEL noise levels ranged from a low of 58.9 dBA CNEL at the residential use north of the Project site (Site 2) to a high of 78.7 dBA CNEL south of the Project site across Temecula Parkway (Site 5). Additionally, short-term 20-minute measurements were gathered on the Project site at the off-set of the proposed five-story bed tower. As shown, short-term ambient noise levels were 57.9 dBA (Leq-20minute) on the Project site.

Current ambient noise measurements were collected at the same five (5) locations between May 3 – 4, 2022. It is important to note, the current ambient measurements presented in **Table 3** also include noise

3 County of Riverside General Plan, "*Noise Element*," accessed December 2021, https://p1cdn4static.civiclive.com/UserFiles/Servers/Server_9894739/File/Government/Departments/Planning/General%20Plan.pdf

levels from the interim helistop, as a test flight occurred on May 3, 2022. Additionally, noise measurements at Site 1 were collected within the public right-of-way along De Portola Road, where the dominant source of continuous noise is generated from motor vehicles, resulting in increased noise levels due to vehicle traffic. As shown in **Table 3**, 24-hour CNEL noise levels ranged from a low of 55.5 dBA CNEL at the residential uses east of the Project site (Site 3) to a high of 75.8 dBA CNEL south of the Project site across Temecula Parkway (Site 5). Additionally, short-term 20-minute measurements gathered on the Project site at the off-set of the proposed five-story bed tower were 55.4 dBA (Leq-20minute).

TABLE 3
EXISTING NOISE MEASUREMENTS IN PROJECT VICINITY (CNEL)

Location Number	Location Description	Measurement Period	Ambient Noise Level, CNEL		
			2014 SEIR[1]	2022 Master Plan Update	Difference
Site 1	30390 De Portola Road	24 hours	59.6	73.7	+14.1
Site 2	30955 De Portola Road	24 hours	58.9	60.8	+1.9
Site 3	31775 De Portola Road	24 hours	63.5	55.5	-8.0
Site 4	On project site, at offset of proposed five-story bed tower	20 minutes	57.9	55.4	-2.5
Site 5	31602 Calle Los Padres (adjacent to Highway 79)	24 hours	78.7	75.8	-2.9

Note: [1] Refer to Table 3.3-1: Summary of Existing Ambient Noise Measurements from Temecula Valley Hospital Helipad Project Draft EIR (November 2014).

*Source: Refer to **Appendix A** for noise monitoring worksheets*

Interim Helistop Noise Levels

As mentioned previously, the current approved projects include two helistop locations, an interim location for use during preliminary project phases and a permanent location on the roof of a future hospital tower. Currently, the interim location has been the primary helistop at the Hospital as the permanent location helistop has not been constructed.

The prevailing wind direction within the project region is to the east, except during Santa Ana wind conditions that blow westward. Helicopters flying to the interim helipad approach and land head into prevailing winds for maximum control over the aircraft (refer to **Figure 6**). Helicopters approaching the hospital helistop approach from the east, flying westbound into the wind to land at the helistop; and take off also in a westbound direction. During Santa Ana or westbound wind conditions, which occur occasionally, helicopters would approach from the west flying eastbound to land at the site, and also take off in an eastbound direction.

To incorporate noise from individual helicopter overflights at the existing interim helipad location with the noise model, a test flight was arranged on May 3, 2022. In coordination with the pilot in command, a "fly-by" noise event was captured and measured at the four (4) long-term measurement sites (Site 1, 2, 3, and 5) to document single-event noise levels from existing helicopter operations at the interim helipad and compare to the maximum modeled noise levels from the 2014 SEIR. As shown in **Table 4: Existing Helicopter Flyover Noise Measurements (SEL)**, current fly-over noise measurements at the interim helistop result in noise levels less than the modeled single-event noise levels presented in the 2014 SEIR. As shown, current fly-over noise measurements result in a decrease ranging from a reduction of 1.5 dBA at the residential uses to the south across Temecula Parkway (Site 5) to a maximum reduction of 8.8 dBA at the residential uses east of the Project site (Site 3). It is important to note, the current fly-over measurements presented in **Table 4** also include noise attributed from motor vehicles traveling along local roadways. Thus, it is reasonable to assume helicopter attributed noise levels at the surrounding sensitive uses are much less than the presented values in **Table 4**.

TABLE 4
EXISTING HELICOPTER FLYOVER NOISE MEASUREMENTS (SEL)

		Single Event Noise Level, dBA		
Location Number	Location Description	2014 SEIR Modeled Helicopter Noise	Current Flyover Noise Measurements	Difference
Site 1	30390 De Portola Road	73.3	71.7	-1.6
Site 2	30955 De Portola Road	85.5	81.2	-4.3
Site 3	31775 De Portola Road	77.8	69.0	-8.8
Site 5	31602 Calle Los Padres (adjacent to Highway 79)	79.7	78.2	-1.5



North



West



South



East



SOURCE: Google Earth - 2022

FIGURE **8**

Meridian Consultants

Noise Monitoring Location (Site 1)

349-001-22



North



West



South



East



SOURCE: Google Earth - 2022

FIGURE **9**

Meridian Consultants

Noise Monitoring Location (Site 2)

349-001-22



North



West



South



East



SOURCE: Google Earth - 2022

FIGURE **10**

Meridian Consultants

Noise Monitoring Location (Site 3)

349-001-22



North



West



South



East



SOURCE: Google Earth - 2022

FIGURE **11**

Meridian Consultants

Noise Monitoring Location (Site 4)

349-001-22



North



West



South



East



SOURCE: Google Earth - 2022

FIGURE **12**

Meridian Consultants

Noise Monitoring Location (Site 5)

349-001-22

METHODOLOGY

Ambient Noise Measurements

To establish baseline noise conditions, existing ambient noise levels, as described above, were monitored at the five representative locations within the vicinity of the Project Site. These monitored noise levels serve as the baseline for the analysis of proposed Project impacts. The baseline noise-monitoring was conducted between May 3 – 4, 2022 using a Larson Davis 831 Type 1 Sound Level Meter.

Operational Noise

Noise-level calculations at the location of noise-sensitive land uses in the Project vicinity were assessed using the SoundPLAN noise model. The SoundPLAN model depicts noise contours at varying distances and accounts for various inputs to analyze topography, vegetation, propagation from buildings, and existing- and proposed-noise sources and barriers. The SoundPLAN model takes into account the varying slant distances between the helicopter and the receiver. The software uses various inputs to analyze the topography, vegetation, vehicle traffic, existing- and proposed-noise sources, and existing- and proposed-barriers to depict noise contours at varying distances. The software utilizes algorithms (based on the inverse square law) to calculate noise level projections. Accuracy has been validated in published studies to be +/- 2.7 dBA with an 85 percent confidence level. The software allows the user to input specific noise sources, spectral content, sound barriers, building placement, topography, and sensitive receptor locations. Helicopter flight profiles were modeled based on the flight paths shown in **Figure 5** above and were programmed into the SoundPLAN noise modeling system.

THRESHOLDS OF SIGNIFICANCE

Noise Sensitive Receivers

There is no completely satisfactory way to measure the subjective effects of noise or of the corresponding human reactions of annoyance and dissatisfaction. This is primarily because of the wide variation in individual thresholds of annoyance and differing individual experiences with noise. Thus, an important way of determining a person's subjective reaction to a new noise is the comparison of it to the existing environment (ambient) to which one has adapted.

In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will typically be judged. As such, the Federal Interagency Committee on Noise (FICON) developed guidance to be used for the assessment of project-generated increases in noise levels that take into account the ambient noise level. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, these recommendations are often used in environmental noise impact assessments involving the use of cumulative noise exposure metrics, such as the average-daily noise level (i.e., CNEL). FICON identifies a readily perceptible 5 dBA or greater project-related noise level increase is considered a significant impact when the noise criteria for a given land use is exceeded. According to the FICON, in areas where the without project noise levels range from 60 to 65 dBA, a 3

dBA barely perceptible noise level increase appears to be appropriate for most people. When the without project noise levels already exceed 65 dBA, any increase in community noise louder than 1.5 dBA or greater is considered a significant impact if the noise criteria for a given land use is exceeded, since it likely contributes to an existing noise exposure exceedance.

Significance Summary

Noise impacts shall be considered significant if any of the following occur as a direct result of the proposed Project.

Operational Noise

- If the existing ambient noise levels at the nearby noise-sensitive receivers near the Project site:
  - Are less than 60 dBA and the Project creates a readily perceptible 5 dBA or greater Project-related noise level increase; or
  - range from 60 to 65 dBA and the Project creates a barely perceptible 3 dBA or greater Project-related noise level increase; or
  - already exceed 65 dBA, and the Project creates a community noise level impact of greater than 1.5 dBA.

Threshold 5.7-1: **Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?**

Operational Noise

To result in a significant impact from operational noise, the proposed Project would have to cause the ambient noise level measured at the property line of affected uses to increase by 3 dBA in CNEL to or within the "normally unacceptable" or "clearly unacceptable" category, or any 5 dBA CNEL or greater noise increase.

The Noise Ordinance does not regulate noise from transportation sources, such as aircraft. Consequently, the FICON recommendations were used to determine whether or not increases in operational noise would be considered significant. **Table 5: Significance of Change in Operational Noise Exposure**, shows the significance thresholds for increases in operational noise levels caused by the Project or by cumulative development. If residential development or other sensitive receptors would be exposed to operational noise increases exceeding these criteria, impacts would be considered significant.

TABLE 5
SIGNIFICANCE OF CHANGE IN OPERATIONAL NOISE EXPOSURE

Ambient Noise Level with Project (Ldn or CNEL)	Significant Impact
< 60 dB	+ 5.0 dB or more
60–65 dB	+ 3.0 dB or more
> 65 dB	+ 1.5 dB or more

MASTER PLAN UPDATE IMPACT ANALYSIS

The following assessment of helicopter operation noise levels implements the Subsequent EIR requirement which calls for the analysis to focus on the change in impact between the approved project and the proposed project, which in this case is the difference between the impact of the Master Plan Update and the 2014 SEIR.

A helicopter approaching the helipad will typically be traveling at cruise speeds of approximately 120 knots (approximately 138 mph) at elevations between 500 to 1,000 feet above ground. At about 0.5 miles from the helipad, a helicopter typically begins reducing speed and initiating the descending process. Once a ground speed of 0 mph is reached above the helipad, the helicopter begins vertical descent to the landing pad, which takes approximately 15 seconds. Once on the helipad surface, the helicopter undergoes a 30-second ground idle. Following the idle period, the helicopter is shut down. Overall, the entire duration of the helicopter approach from 0.5 miles of the landing site is under 2 minutes.

For the helicopter departure, start-up and flight checks are performed during the ground-idle phase, which typically lasts up to 3 minutes. Following the flight checks and start-up, the rotor blades begin turning at full power, hover is initiated, and the aircraft ascends vertically above the pad, which lasts approximately 15 seconds. Once desired altitude is reached, the helicopter accelerates horizontally and departs the Project Site. Overall, the main noise-producing portion of the departure to altitude and cruising speed from initial start-up takes under 1 minute, with surrounding land uses exposed to maximum sound levels for less than 15 seconds during this period.

The typical aircraft type using the proposed helipad is expected to be the Bell 407 helicopter operated by Mercy Air Services, or similar makes/models used by other hospital air ambulances such as the Airbus H135 and EC145 Helicopters. A typical helicopter flight includes both takeoff and landing. Based on flight logs provided by Mercy Air regarding current flight operations to and from the Hospital, a maximum of one (1) flight has occurred on any given day and three (3) flights in a month at various times over the course of 2021. Additionally, no flights occurred 5 out of the 12 months within the 2021 calendar year. This is significantly less than the four (4) flights assumed per month in the 2014 SEIR. Conservatively, to simulate a worst-case scenario helicopter approach/departure noise impacts within the vicinity of the hospital, it was assumed three (3) flights would occur on any given day, with one (1) flight occurring during the daytime (between 7:00 AM to 7:00 PM), one (1) flight during the evening (between 7:00 PM –

10:00 PM), and one (1) flight during the nighttime (between 10:00 PM – 7:00 AM) periods. Although it is unlikely that three (3) flights would occur on any given day, this conservative assumption takes into account the additional weighting during the evening and nighttime periods to account for increased sensitivity residences would be exposed to during these hours.

CNEL Standards

As shown in **Table 6: Exterior Noise Levels-Proposed Flight Path (CNEL)**, helicopter noise levels during flight paths to and from the east would range from a low of 28.5 dBA CNEL at Site 1 to a high of 54.6 dBA CNEL at the Project site. Additionally, helicopter noise levels during flight paths to and from the west would range from 31.7 dBA CNEL at Site 3 to a high of 44.5 dBA CNEL at Site 5. Helicopter generated noise levels would not result in increases in sound level standards at any of the nearby sensitive receptors and thus would be below the FICON-recommended 5.0 dB threshold for ambient noise of less than 60 dBA CNEL, 3.0 dB threshold for ambient noise of 60–65 dBA CNEL, and the 1.5 dB threshold for ambient noise greater than 65 dBA CNEL. The Project would not exceed the land use compatibility criteria.

For additional information and illustrative purposes, 24-hour CNEL noise levels for the proposed flight path are shown graphically in **Figure 13: Helicopter Proposed Flight Path to and from the East (CNEL Contour)** and **Figure 14: Helicopter Proposed Flight Path to and from the West (CNEL Contour)**. The City of Temecula General Plan criteria sets noise standards for residential areas at 65 dBA CNEL for low- and medium-intensity housing, and 70 dBA CNEL for multi-family housing. The General Plan uses a CNEL standard that averages noise over 24-hours. As shown in **Figure 13** and **Figure 14**, no residential areas would result in helicopter noise levels exceeding 65 dBA CNEL at low- and medium intensity residential areas and 70 dBA CNEL at multi-family housing areas.

Additionally, residential development or other sensitive receptors would not be exposed to operational noise increases exceeding the FAA adopted threshold of 65 dBA CNEL. As such, impacts would not be considered significant.

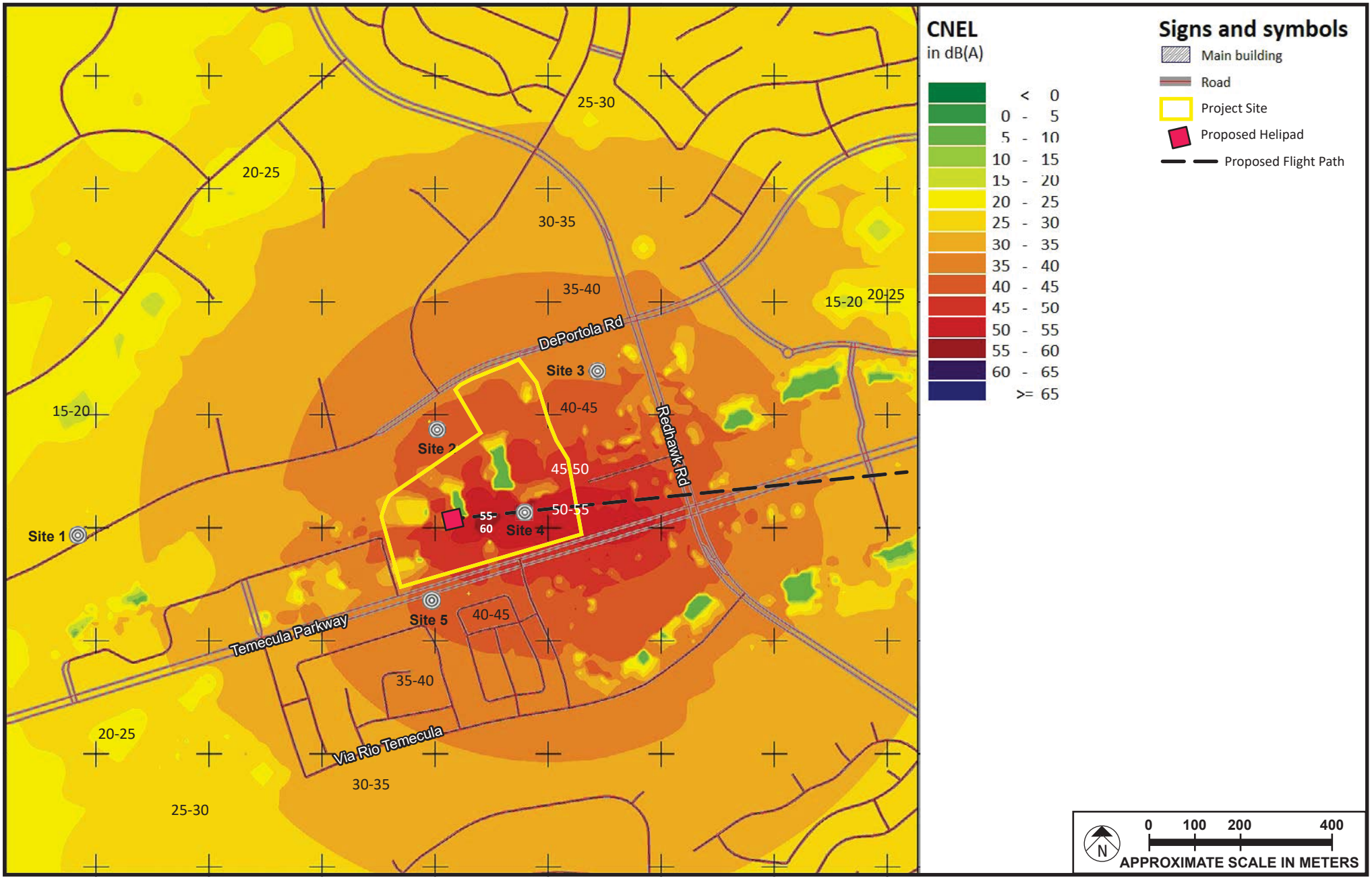
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TABLE 6
EXTERIOR NOISE LEVELS – PROPOSED FLIGHT PATH (CNEL)

Site Number	Site Description/Address	Ambient Noise Levels	Modeled Helicopter Noise Levels	Combined Ambient and Helicopter Noise Levels	Increase Above Ambient	Significant Impact?
		dBA, CNEL				
Flight Path to and from the East						
Site 1	30390 De Portola Road	73.7	28.5	73.7	0.0	**No**
Site 2	30955 De Portola Road	60.8	40.5	60.8	0.0	**No**
Site 3	31775 De Portola Road	55.5	40.9	55.6	0.1	**No**
Site 5	31602 Calle Los Padres	75.8	44.1	75.8	0.0	**No**
Flight Path to and from the West						
Site 1	30390 De Portola Road	73.7	33.2	73.7	0.0	**No**
Site 2	30955 De Portola Road	60.8	40.3	60.8	0.0	**No**
Site 3	31775 De Portola Road	55.5	31.7	55.5	0.0	**No**
Site 5	31602 Calle Los Padres	75.8	44.5	75.8	0.0	**No**

Note: Site 4 (hospital site) not listed as sensitive use.
Source: SoundPLAN version 8.2
*Refer to **Appendix B** for SoundPLAN Output Sheets.*

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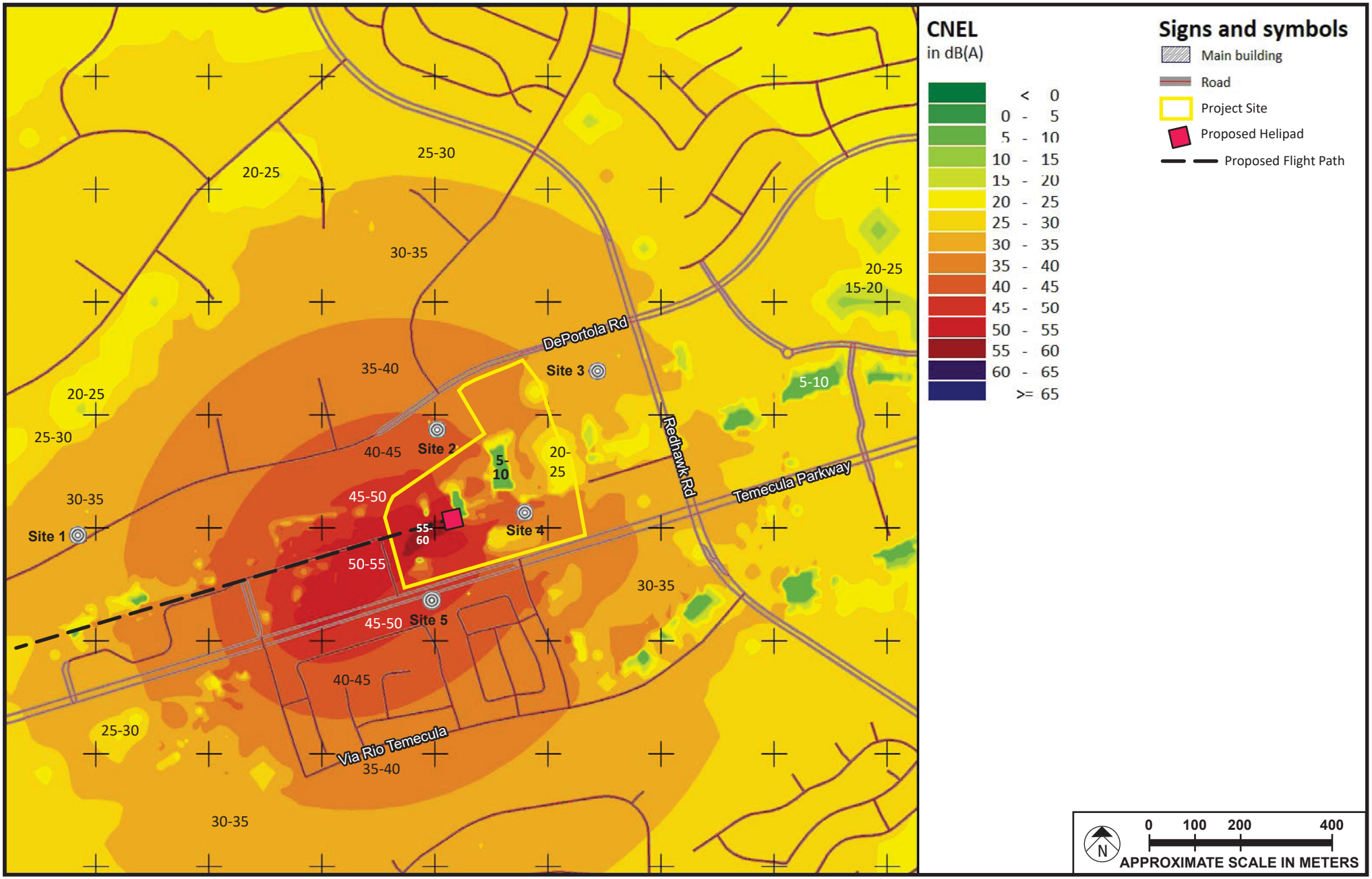
SOURCE: Google Earth - 2022

FIGURE **13**

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Helicopter Proposed Flight Path to and from the East (CNEL Contour)

349-001-22



SOURCE: Google Earth - 2022

FIGURE **14**

Meridian Consultants

Helicopter Proposed Flight Path to and from the West (CNEL Contour)

349-001-22

Analysis of Master Plan Update's Increase in Helicopter Noise Levels Compared to the Approved Project

CNEL Comparison

Table 7: Helicopter Noise Level Comparison (CNEL), presents the helicopter noise levels from both the Approved Project and Master Plan Update conditions. As mentioned previously, the new helipad location would be on the roof of the proposed parking structure as compared to the existing at-grade helipad location to minimize noise impacts to surrounding land uses. As shown in **Table 7**, when compared to the Approved Project, noise levels for the flight path to and from the east would result in increases of 2.2 dBA CNEL and 1.6 dBA CNEL at the multi-family residential uses at the corner of De Portola Road and Margarita Road (Site 3) and the residential use along De Portola Road to the west (Site 1), respectively. Additionally, noise levels for the flight path to and from the west would result in an increase of 6.3 dBA CNEL at the residential use along De Portola Road to the west (Site 1) with helicopter attributed noise levels at 33.2 dBA. This is characterized as a faint noise level when compared to the common sounds on the A-weighted decibel scale (refer to **Table 1**).

An increase in ambient noise would be imperceptible, or at most barely perceptible, where that increase is less than 3 dBA. Such an increase in ambient noise levels would not have a significant effect on the physical environment. The more a new source of noise exceeds the ambient noise level, the less acceptable the new noise will be judged by those hearing it. As such, when compared to the ambient environment, the maximum increase of 6.3 dBA at Site 1 would not be perceivable as noise levels would not result in any increases above ambient conditions (refer to **Table 6** above). Additionally, a 10 dBA change is subjectively heard as approximately doubling in loudness and can cause adverse response. [4] As shown in **Table 7**, noise level increases would not result in any change of 10 dBA or more, thus not resulting in any adverse community response. As such, the Project would not exceed the land use compatibility criteria and would not result in any new significant impacts when compared to the Approved Project.

4 California Department of Transportation, *Technical Nosie Supplement*, September 2013, accessed September 2021, https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tens-sep2013-a11y.pdf

TABLE 7
HELICOPTER NOISE LEVEL COMPARISON (CNEL)

ID	Site Description/Address	Approved Project Modeled Helicopter Noise Levels[1]	Master Plan Update Modeled Helicopter Noise Levels	Changes in Noise Levels	New Significant Impact Compared to Approved Project?
		dBA, CNEL			
Flight Path to and from the East					
Site 1	30390 De Portola Road	26.9	28.5	+1.6	**No**
Site 2	30955 De Portola Road	46.6	40.5	-6.1	**No**
Site 3	31775 De Portola Road	38.7	40.9	+2.2	**No**
Site 5	31602 Calle Los Padres	47.2	44.1	-3.1	**No**
Flight Path to and from the West					
Site 1	30390 De Portola Road	26.9	33.2	+6.3	**No**
Site 2	30955 De Portola Road	46.6	40.3	-6.3	**No**
Site 3	31775 De Portola Road	38.7	31.7	-7.0	**No**
Site 5	31602 Calle Los Padres	47.2	44.5	-2.7	**No**

Note: [1] Refer to Table 3.3-10: Summary of Existing Ambient Noise Measurements and INM Location Point Noise for the Interim Location from Temecula Valley Hospital Helipad Project Draft EIR (November 2014).

Site 4 (hospital site) not listed as sensitive use.

Source: SoundPLAN version 8.2

*Refer to **Appendix B** for SoundPLAN Output Sheets.*

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Single Event Noise Level (SEL) Comparison

Table 8: Helicopter Noise Level Comparison (SEL), presents the short-term single-event helicopter noise levels from both the Approved Project and Master Plan Update conditions. As shown in **Table 8**, when compared to the Approved Project, noise levels for the flight path to and from the east would result in maximum decreases of 36.1 dBA at the equestrian trail to the north (Site 6). This is mainly due to the new helipad relocation at the roof of the proposed parking structure furthering the distance from the equestrian trail. Additionally, noise levels for the flight path to and from the west would result in maximum decreases of 17.0 dBA at the residential use to the west along De Portola Road (Site 1). No increases in single-event noise levels would result as part of the Master Plan Update when compared to the Approved Project. As such, no new significant impacts would occur when compared to the Approved Project.

TABLE 8
HELICOPTER NOISE LEVEL COMPARISON (SEL)

ID	Site Description/Address	Approved Project Modeled Helicopter Noise Levels[1]	Master Plan Update Modeled Helicopter Noise Levels	Changes in Noise Levels	New Significant Impact Compared to Approved Project?
		dBA, SEL			
Flight Path to and from the East					
Site 1	30390 De Portola Road	65.6	51.6	-14.0	**No**
Site 2	30955 De Portola Road	85.5	63.6	-21.9	**No**
Site 3	31775 De Portola Road	77.8	64.0	-13.8	**No**
Site 5	31602 Calle Los Padres	75.6	67.1	-8.5	**No**
Site 6	Direct Overflight of Equestrian Trail	100.8	64.7	-36.1	**No**
Flight Path to and from the West					
Site 1	30390 De Portola Road	73.3	56.3	-17.0	**No**
Site 2	30955 De Portola Road	73.3	63.4	-9.9	**No**
Site 3	31775 De Portola Road	59.6	54.8	-4.8	**No**
Site 5	31602 Calle Los Padres	79.7	67.6	-12.1	**No**
Site 6	Direct Overflight of Equestrian Trail	76.3	66.3	-10.0	**No**

Note: [1] Refer to Table 3.3-9: Single-Event Noise Levels of the Interim Helistop at Nearby Uses from Temecula Valley Hospital Helipad Project Draft EIR (November 2014).

Source: SoundPLAN version 8.2

*Refer to **Appendix B** for SoundPLAN Output Sheets.*

CONCLUSIONS

As shown in **Table 6**, helicopter noise levels during flight paths to and from the east would range from a low of 28.5 dBA CNEL at Site 1 to a high of 54.6 dBA CNEL at the Project site. Additionally, helicopter noise levels during flight paths to and from the west would range from 31.7 dBA CNEL at Site 3 to a high of 44.5 dBA CNEL at Site 5. Helicopter generated noise levels would not result in increases in sound level standards at any of the nearby sensitive receptors and thus would be below the FICON-recommended 5.0 dB threshold for ambient noise of less than 60 dBA CNEL, 3.0 dB threshold for ambient noise of 60–65 dBA CNEL, and the 1.5 dB threshold for ambient noise greater than 65 dBA CNEL. The Project would not exceed the land use compatibility criteria.

As shown in **Figure 13**, no residential would result in helicopter noise levels exceeding 65 dBA CNEL at low- and medium intensity residential areas and 70 dBA CNEL at multi-family housing areas.

As shown in **Table 7**, when compared to the Approved Project, noise levels for the flight path to and from the east would result in increases of 2.2 dBA CNEL and 1.6 dBA CNEL at the multi-family residential uses at the corner of De Portola Road and Margarita Road (Site 3) and the residential use along De Portola Road to the west (Site 1), respectively. Additionally, noise levels for the flight path to and from the west would result in an increase of 6.3 dBA CNEL at the residential use along De Portola Road to the west (Site 1) with helicopter attributed noise levels at 33.2 dBA. This is characterized as a faint noise level when compared to the common sounds on the A-weighted decibel scale. When compared to the ambient environment, the maximum increase of 6.3 dBA at Site 1 would not be perceivable as noise levels would not result in any increases above ambient conditions (refer to **Table 6** above). Additionally, noise level increases would not result in any change of 10 dBA or more, thus not resulting in any adverse community response. As such, the Project would not exceed the land use compatibility criteria and would not result in any new significant impacts when compared to the Approved Project.

As shown in **Table 8**, when compared to the Approved Project, noise levels for the flight path to and from the east would result in maximum decreases of 36.1 dBA at the equestrian trail to the north (Site 6). This is mainly due to the new helipad relocation at the roof of the proposed parking structure furthering the distance from the equestrian trail. Additionally, noise levels for the flight path to and from the west would result in maximum decreases of 17.0 dBA at the residential use to the west along De Portola Road (Site 1). No increases in single-event noise levels would result as part of the Master Plan Update when compared to the Approved Project. As such, no new significant impacts would occur when compared to the Approved Project.

CERTIFICATION

The contents of this noise study represent an accurate depiction of the noise environment and impacts associated with the Temecula Valley Hospital Master Plan Update Project. The information contained in this noise study is based on the best available information at the time of preparation. If you have any questions, please contact me directly at (805) 413-4187.



Christ Kirikian, INCE Associate
Principal | Director of Air Quality & Acoustics
ckirikian@meridianconsultantsllc.com

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APPENDIX A

Noise Monitoring Data Sheets

A.1

Short-term (20-minute) Noise Measurements

Monitoring Location: Site 4
Monitoring Date: 5/3/2022

Monitoring Period

Time	LAeq	LASmax	LASmin
9:24:59	54.1	57.7	50.1
9:25:59	54.8	60.6	49.7
9:26:59	55.8	60.7	49.5
9:27:59	54.5	58.3	47.8
9:28:59	55.4	58.8	49.0
9:29:59	54.8	58.8	47.5
9:30:59	58.0	67.9	48.2
9:31:59	52.7	58.9	46.8
9:32:59	56.7	59.5	48.1
9:33:59	52.0	58.9	47.0
9:34:59	58.2	61.4	46.7
9:35:59	54.6	61.1	47.3
9:36:59	55.5	63.1	47.1
9:37:59	52.6	56.8	46.2
9:38:59	57.2	67.6	46.5
9:39:59	55.2	62.5	48.1
9:40:59	54.4	58.4	49.6
9:41:59	53.7	58.7	48.5
9:42:59	54.2	57.6	48.8
9:43:59	56.6	62.9	48.8
9:44:59	55.3	55.9	55.2

20-minute LAeq **55.4**

A.2
Long-term (24-hour) Noise Measurements

Monitoring Location: Site 1
Date: May 3-4, 2022

Time: Start 9:00 AM

Monitoring Period			Monitored Leq	Logarithmic Equivalent	Evening/Night Adjustments 10 dB	5 dB
Midnight		0 / 24	57.4	548802	5488024	1735466
am	1:00	100	55.9	389570	3895704	1231930
	2:00	200	56.7	470456	4704560	1487712
	3:00	300	60.7	1174495	11744945	3714078
	4:00	400	66.3	4249903	42499028	13439373
	5:00	500	69.6	9065234	90652336	28666786
	6:00	600	71.2	13209397	132093972	41771782
	7:00	700	72.5	17914925	179149252	56651968
	8:00	800	72.3	16940803	169408033	53571524
	9:00	900	71.2	13216243	132162425	41793429
	10:00	1000	70.9	12251887	122518875	38743870
	11:00	1100	71.3	13479538	134795378	42626041
	12:00	1200	71.5	14234132	142341324	45012279
pm	1:00	1300	71.0	12579460	125794600	39779745
	2:00	1400	71.8	15115830	151158300	47800452
	3:00	1500	72.4	17355215	173552151	54882009
	4:00	1600	72.0	15726570	157265696	49731780
	5:00	1700	72.1	16035777	160357767	50709578
	6:00	1800	71.0	12733975	127339752	40268365
	7:00	1900	69.9	9758566	97585659	30859295
	8:00	2000	67.2	5215873	52158729	16494038
	9:00	2100	66.0	3945718	39457176	12477455
	10:00	2200	63.7	2360451	23604511	7464402
pm	11:00	2300	60.9	1240521	12405207	3922871

Leq Morning Peak Hour 7:00-10:00 a.m.
72 dBA

Leq Evening Peak Hour 4:00-8:00 p.m.
71 dBA

Leq Nighttime 10:00 pm-7:00 a.m. (not adjusted)
65.6 dBA

Leq Daytime 7:00 am-10:00 p.m.
71.2 dBA

Leq 24-Hour
70 dBA

Ldn: 10 dB adjustment between 10:00 p.m. & 7:00 a.m.
73 dBA

CNEL: 5 dB adjustment between 7:00p.m. & 10:00 p.m., & 10 dB
73.7 dBA **adjustment between 10:00 p.m. & 7:00 a.m.**

Difference between CNEL and Ldn
CNEL - Ldn 0.3267292

Monitoring Location: Site 2
Date: May 3-4, 2022

Time: Start 10:00 AM

Monitoring Period			Monitored Leq	Logarithmic Equivalent	Evening/Night Adjustments 10 dB	5 dB
Midnight		0 / 24	43.4	22091	220915	69859
am	1:00	100	43.3	21317	213173	67411
	2:00	200	43.4	21968	219677	69468
	3:00	300	44.7	29661	296605	93795
	4:00	400	48.6	72309	723091	228661
	5:00	500	55.3	336626	3366263	1064506
	6:00	600	51.8	152418	1524179	481988
	7:00	700	51.4	137848	1378482	435914
	8:00	800	50.9	124074	1240743	392358
	9:00	900	50.1	102987	1029869	325673
	10:00	1000	49.2	83690	836901	264651
	11:00	1100	54.3	270283	2702825	854708
	12:00	1200	51.8	152543	1525429	482383
pm	1:00	1300	49.7	92829	928293	293552
	2:00	1400	68.7	7418601	74186008	23459675
	3:00	1500	52.5	178160	1781603	563392
	4:00	1600	54.3	268685	2686847	849656
	5:00	1700	54.2	262070	2620698	828738
	6:00	1800	68.8	7658240	76582405	24217483
	7:00	1900	61.8	1526272	15262722	4826497
	8:00	2000	48.6	71919	719187	227427
	9:00	2100	47.2	52629	526292	166428
	10:00	2200	45.9	38464	384640	121634
pm	11:00	2300	44.0	25097	250970	79364

Leq Morning Peak Hour 7:00-10:00 a.m.
51 dBA

Leq Evening Peak Hour 4:00-8:00 p.m.
64 dBA

Leq Nighttime 10:00 pm-7:00 a.m. (not adjusted)
49.0 dBA

Leq Daytime 7:00 am-10:00 p.m.
60.9 dBA

Leq 24-Hour
59 dBA

Ldn: 10 dB adjustment between 10:00 p.m. & 7:00 a.m.
60 dBA

CNEL: 5 dB adjustment between 7:00p.m. & 10:00 p.m., & 10 dB
60.8 dBA **adjustment between 10:00 p.m. & 7:00 a.m.**

Difference between CNEL and Ldn
CNEL - Ldn 0.56688777

Monitoring Location: Site 3
Date: May 3-4, 2022

Time: Start 9:00 AM

Monitoring Period			Monitored Leq	Logarithmic Equivalent	Evening/Night Adjustments 10 dB	5 dB
Midnight		0 / 24	42.1	16269	162693	51448
am	1:00	100	42.7	18426	184265	58270
	2:00	200	43.4	21795	217954	68923
	3:00	300	42.4	17507	175073	55363
	4:00	400	45.7	36803	368026	116380
	5:00	500	49.1	82168	821682	259839
	6:00	600	49.8	95593	955932	302292
	7:00	700	49.4	87466	874661	276592
	8:00	800	50.9	121863	1218628	385364
	9:00	900	50.3	106731	1067309	337513
	10:00	1000	49.3	86055	860546	272128
	11:00	1100	59.6	918707	9187069	2905206
	12:00	1200	54.6	286711	2867114	906661
pm	1:00	1300	48.4	69053	690526	218363
	2:00	1400	56.9	490645	4906446	1551554
	3:00	1500	50.6	114240	1142405	361260
	4:00	1600	51.5	141102	1411019	446204
	5:00	1700	53.6	228199	2281986	721627
	6:00	1800	59.8	944361	9443609	2986331
	7:00	1900	53.6	227953	2279534	720852
	8:00	2000	51.5	141237	1412368	446630
	9:00	2100	47.7	58426	584262	184760
	10:00	2200	46.3	42420	424203	134145
pm	11:00	2300	44.0	25198	251981	79683

Leq Morning Peak Hour 7:00-10:00 a.m.
50 dBA

Leq Evening Peak Hour 4:00-8:00 p.m.
56 dBA

Leq Nighttime 10:00 pm-7:00 a.m. (not adjusted)
46.0 dBA

Leq Daytime 7:00 am-10:00 p.m.
54.3 dBA

Leq 24-Hour
53 dBA

Ldn: 10 dB adjustment between 10:00 p.m. & 7:00 a.m.
55 dBA

CNEL: 5 dB adjustment between 7:00p.m. & 10:00 p.m., & 10 dB
55.5 dBA **adjustment between 10:00 p.m. & 7:00 a.m.**

Difference between CNEL and Ldn
CNEL - Ldn 0.49957618

Monitoring Location: Site 5
Date: May 3-4, 2022

Time: Start 9:00 AM

Monitoring Period			Monitored Leq	Logarithmic Equivalent	Evening/Night Adjustments 10 dB	5 dB
Midnight		0 / 24	65.3	3420913	34209128	10817876
am	1:00	100	64.1	2543162	25431618	8042184
	2:00	200	63.1	2054646	20546460	6497361
	3:00	300	64.3	2671511	26715112	8448060
	4:00	400	68.0	6342610	63426099	20057094
	5:00	500	69.5	8863250	88632500	28028058
	6:00	600	71.6	14333954	143339538	45327942
	7:00	700	72.0	16027619	160276186	50683780
	8:00	800	72.9	19611463	196114633	62016892
	9:00	900	72.6	18386159	183861585	58142138
	10:00	1000	72.5	17924374	179243741	56681848
	11:00	1100	72.4	17302267	173022666	54714571
	12:00	1200	72.3	16795734	167957345	53112776
pm	1:00	1300	72.1	16058575	160585748	50781672
	2:00	1400	73.0	19728088	197280882	62385692
	3:00	1500	72.1	16376647	163766475	51787506
	4:00	1600	72.9	19323020	193230198	61104754
	5:00	1700	72.7	18774570	187745700	59370403
	6:00	1800	73.1	20603405	206034050	65153687
	7:00	1900	72.6	18081981	180819806	57180243
	8:00	2000	71.6	14521216	145212165	45920118
	9:00	2100	70.6	11394598	113945978	36032882
	10:00	2200	69.6	9205789	92057887	29111260
pm	11:00	2300	67.3	5335646	53356459	16872794

Leq Morning Peak Hour 7:00-10:00 a.m.
73 dBA

Leq Evening Peak Hour 4:00-8:00 p.m.
73 dBA

Leq Nighttime 10:00 pm-7:00 a.m. (not adjusted)
67.8 dBA

Leq Daytime 7:00 am-10:00 p.m.
72.4 dBA

Leq 24-Hour
71 dBA

Ldn: 10 dB adjustment between 10:00 p.m. & 7:00 a.m.
75 dBA

CNEL: 5 dB adjustment between 7:00p.m. & 10:00 p.m., & 10 dB
75.8 dBA **adjustment between 10:00 p.m. & 7:00 a.m.**

Difference between CNEL and Ldn
CNEL - Ldn 0.48306195

APPENDIX B

SoundPLAN Output: Helicopter Noise Worksheets

Flight Path to and from the East (CNEL)

Receiver	Fl	CNEL/dB(A)	Leq,d/dB(A)	Leq,e/dB(A)	Leq,n/dB(A)	Time slice	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
Site 1	G	28.6	20.1	26.1	21.3	CNEL	12	10	17.8	24.4	25.1	15.2	-14.5	-91.1
						Leq,d	3.5	1.5	9.3	15.9	16.6	6.7	-23	-99.6
						Leq,e	9.5	7.5	15.3	21.9	22.7	12.7	-17	-93.6
						Leq,n	4.7	2.7	10.5	17.1	17.9	7.9	-21.8	-98.4
Site 2	G	40.6	32.1	38.1	33.4	CNEL	20.1	22.3	28.8	35.9	37.2	31.2	16.4	-9.8
						Leq,d	11.6	13.8	20.3	27.4	28.7	22.7	7.9	-18.3
						Leq,e	17.6	19.8	26.3	33.5	34.7	28.7	14	-12.3
						Leq,n	12.8	15.1	21.5	28.7	29.9	23.9	9.2	-17.1
Site 3	G	40.9	32.4	38.4	33.7	CNEL	19.6	19.9	31	38.1	35.7	28.6	11.5	-24.2
						Leq,d	11.1	11.4	22.5	29.6	27.2	20.1	3	-32.7
						Leq,e	17.2	17.5	28.5	35.6	33.2	26.1	9	-26.7
						Leq,n	12.4	12.7	23.7	30.8	28.4	21.3	4.3	-31.5
Site 4	G	54.6	46.1	52.1	47.3	CNEL	33.8	36.5	43.9	50.2	50.4	45.5	35.5	25.8
						Leq,d	25.3	28	35.4	41.7	41.9	37	27	17.3
						Leq,e	31.3	34	41.4	47.7	48	43	33	23.3
						Leq,n	26.6	29.2	36.7	42.9	43.2	38.2	28.2	18.6
Site 5	G	44.1	35.6	41.6	36.8	CNEL	24.3	26.4	31.7	38.9	40.8	35.4	22.6	3.2
						Leq,d	15.8	17.9	23.2	30.4	32.3	26.9	14.1	-5.3
						Leq,e	21.8	24	29.2	36.4	38.3	32.9	20.1	0.7
						Leq,n	17	19.2	24.4	31.6	33.6	28.2	15.3	-4.1
Site 6	G	43.2	34.7	40.7	35.9	CNEL	22.4	25.7	31.8	38.5	39.5	34	21	0.5
						Leq,d	13.9	17.1	23.3	30	31	25.5	12.5	-8
						Leq,e	20	23.2	29.4	36	37	31.5	18.5	-2
						Leq,n	15.2	18.4	24.6	31.3	32.3	26.7	13.7	-6.8

Flight Path to and from the West (CNEL)

Receiver	Fl	CNEL/dB(A)	Leq,d/dB(A)	Leq,e/dB(A)	Leq,n/dB(A)
Site 1	G	33.2	24.7	30.7	26
Site 2	G	40.3	31.8	37.9	33.1
Site 3	G	31.7	23.2	29.2	24.5
Site 4	G	40.6	32.1	38.1	33.3
Site 5	G	44.6	36.1	42.1	37.3
Site 6	G	41.6	33.1	39.1	34.4

Time slice	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
CNEL	15.7	14.8	21.7	28.6	30	22.1	-0.3	-53.1
Leq,d	7.2	6.3	13.2	20.1	21.5	13.6	-8.8	-61.6
Leq,e	13.2	12.3	19.2	26.1	27.5	19.6	-2.7	-55.6
Leq,n	8.4	7.6	14.4	21.3	22.7	14.8	-7.5	-60.3
CNEL	21.4	22.9	28.3	35.4	37	31	16.2	-10
Leq,d	12.9	14.4	19.8	26.9	28.5	22.5	7.7	-18.5
Leq,e	18.9	20.4	25.8	32.9	34.5	28.5	13.7	-12.5
Leq,n	14.1	15.6	21	28.2	29.8	23.8	8.9	-17.2
CNEL	11.1	13.6	23.7	28.6	26.2	18.2	-3.9	-56.9
Leq,d	2.6	5.1	15.2	20.1	17.7	9.7	-12.4	-65.4
Leq,e	8.6	11.1	21.2	26.2	23.7	15.7	-6.4	-59.4
Leq,n	3.8	6.3	16.4	21.4	18.9	10.9	-11.2	-64.2
CNEL	20.4	22.6	29	35.9	37	31.5	17.8	-3.9
Leq,d	11.9	14.1	20.5	27.4	28.5	23	9.3	-12.4
Leq,e	17.9	20.1	26.5	33.4	34.5	29	15.3	-6.4
Leq,n	13.1	15.3	21.7	28.6	29.8	24.2	10.5	-11.2
CNEL	25.2	27.3	32.1	39.3	41.3	35.9	23.2	3.8
Leq,d	16.7	18.8	23.6	30.8	32.8	27.4	14.7	-4.7
Leq,e	22.7	24.8	29.6	36.8	38.8	33.4	20.7	1.3
Leq,n	18	20.1	24.8	32	34.1	28.7	15.9	-3.5
CNEL	20.7	23.4	30.4	37.6	37.7	31.6	17.1	-8
Leq,d	12.2	14.9	21.9	29.1	29.2	23.1	8.6	-16.5
Leq,e	18.2	20.9	27.9	35.1	35.2	29.1	14.6	-10.5
Leq,n	13.4	16.2	23.2	30.3	30.5	24.4	9.8	-15.3

Flight Path to and from the East (SEL)

Receiver	Fl	SEL/dB(A)	Time slice	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
Site 1	G	51.6	SEL	35.1	33	40.9	47.4	48.2	38.2	8.6	-68.1
Site 2	G	63.7	SEL	43.1	45.4	51.9	59	60.3	54.3	39.5	13.3
Site 3	G	64	SEL	42.7	43	54.1	61.2	58.8	51.6	34.6	-1.1
Site 4	G	77.6	SEL	56.9	59.6	67	73.3	73.5	68.6	58.5	48.9
Site 5	G	67.2	SEL	47.3	49.5	54.8	62	63.9	58.5	45.7	26.3
Site 6	G	66.3	SEL	45.5	48.7	54.9	61.6	62.6	57.1	44.1	23.6

Flight Path to and from the West (SEL)

Receiver	Fl	SEL/dB(A)	Time slice	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
Site 1	G	56.3	SEL	38.7	37.9	44.8	51.7	53.1	45.2	22.8	-30
Site 2	G	63.4	SEL	44.4	45.9	51.4	58.5	60.1	54.1	39.2	13.1
Site 3	G	54.8	SEL	34.2	36.6	46.8	51.7	49.3	41.2	19.2	-33.9
Site 4	G	63.7	SEL	43.4	45.6	52	59	60.1	54.6	40.8	19.1
Site 5	G	67.6	SEL	48.3	50.4	55.2	62.4	64.4	59	46.2	26.9
Site 6	G	64.7	SEL	43.7	46.5	53.5	60.6	60.8	54.7	40.1	15.1

Appendix H

VMT Analysis Technical Report

LINSCOTT LAW & GREENSPAN
engineers

VEHICLE MILES TRAVELED ANALYSIS

TEMECULA VALLEY HOSPITAL MASTER PLAN PROJECT

Temecula, California
October 31, 2022

LLG Ref. 3-21-3542

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VEHICLE MILES TRAVELED ANALYSIS

TEMECULA VALLEY HOSPITAL MASTER PLAN PROJECT

Temecula, California
October 31, 2022

1.0 INTRODUCTION

The Temecula Valley Hospital is located north of Temecula Parkway, and east of Dona Lynora in the City of Temecula. The Master Plan for this Hospital was approved in January 2008. Phase 1 of the Master Plan is constructed and currently operating. A modification to the approved Master Plan is proposed.

2.0 PROJECT DESCRIPTION

The Project is located north of Temecula Parkway between just west of Margarita Road in the City of Temecula.

The project applicant, Universal Health Services, Inc., is proposing the Temecula Valley Hospital Master Plan Update (proposed project). The proposed project consists of revisions to the currently adopted Temecula Valley Hospital Master Plan, which would require a Major Modification and a Planned Development Overlay (PDO) Amendment. The project site is located at 31700 Temecula Parkway in the City of Temecula in the County of Riverside. A 237,305 SF hospital tower is currently built. The proposed project would be developed over three phases, consisting of the following primary components:

- Phase I is the Existing 237,305 SF hospital tower and a 12,600 SF storage building.
- Phase II includes development of an approximately 102,000-square-foot, four-story Behavioral Health Building and two visitor parking lots.
- Phase III includes development of an approximately 20,000-square-foot expansion to the emergency department; a 125,000-square-foot, five-story second hospital tower; an 80,000-square-foot medical office building; and a 14,000-square-foot utility plant. In addition, Phase III includes reconfiguration of existing parking lots and development of two new parking lots.
- Phase IV includes two design options: Option A and Option B. Both design options include development of an approximately 125,000-square-foot, five-story third hospital tower; an 80,000-square-foot, three-story medical office building; and a four-story parking structure. However, the two design options differ with respect to the location of the second medical office building and the final location of the existing helipad. Under Option A, the helipad would be relocated from its interim location west of the existing hospital to the roof of the proposed parking structure and would utilize a new east-west arrival/departure path. Under Option B, the helipad would be maintained at its current location and would continue to utilize the existing northeast-southwest arrival/departure path.

The existing 237,305-square foot hospital building, 5,180-square foot storage building, onsite roadways, drainage infrastructure, and stormwater quality basins that were constructed during Phase I of the previously approved master plan would be maintained in place. Specific timing for the development of Phases II to IV has not been established and is dependent upon demand. Upon completion, the total building area at the project site would be 746,121 square feet with a floor area ratio of 0.49. The completed hospital facilities would have a total of 564 beds. The total number of parking spaces upon completion would differ depending on the design option selected (1,748 parking spaces under Option A or 1,632 parking spaces under Option B).

Figure 2-1 depicts the Vicinity Map.

2.1 Project Access

Three driveways are currently provided. A new access is planned at the Proposed Behavioral health building in Phase II via Dona Lenora Road. The following is a description of the existing and proposed driveways:

- **Temecula Parkway Access**

  Temecula Parkway forms the southern boundary of the Project site. The Project Main Access is provided on the northside of Temecula Parkway at the Temecula Parkway / County Glen Way intersection. This is a full access signalized intersection.

- **De Portola Road Access**

  De Portola Road forms the northern boundary of the Project site. The De Portola Road Access is provided on the northern boundary of the site to De Portola Road. This Two-Way Stop-Controlled intersection allows right-in / right-out and left-in access only.

- **Rancho Pueblo Road / Dona Lynora Access**

  The north leg of the Rancho Pueblo Road / Dona Lynora Road intersection currently provides the third access to the hospital. This All-Way Stop-Controlled intersection and permits full access.

- **Dona Lynora Road Access**

  A new access point is proposed on the east curb of Dona Lynora, between Rancho Pueblo Road and Temecula Parkway. Full access will be provided at this driveway at the proposed behavioral health building in Project Phase II.

Figure 2-2 depicts the Project Area Map and ***Figure 2-3*** depicts the Conceptual Site Plan.

2.2 Project Trip Generation

Traffic generation is expressed as vehicle trip ends, defined as one-way vehicular movements, either entering or exiting the generating land use. Generation equations and/or rates used in the traffic forecasting procedure are found in the 11th Edition of *Trip Generation*, published by the Institute of Transportation Engineers (ITE). The Following trip rates were used for the proposed land used to estimate the trip generation for the Proposed Project:

- For the Hospital, trip rates for Hospital (Land Use 610) from the Institute of Transportation Engineers (ITE) *Trip Generation* 11th Edition were used.

- The Storage building and the Central Utility Plant do not generate additional trips and hence no trip rate is applied.

- Trip rates for Behavioral Hospitals are not available. Therefore, rates developed from actual counts at 5 Behavioral hospitals were used. Please see ***Appendix F*** for the trip generation study at 5 behavioral hospitals.

- For the MOB, trip rates for Medical-Dental Office Building (Land Use 720) from the ITE *Trip Generation* 11th Edition were used.

Table 2-1 depicts the detailed trip generation rates used in forecasting the vehicular trips generated by the proposed Project and presents the forecast daily and peak hour project traffic volumes for a "typical" weekday. ***Table 2-2*** summarizes the Project Trip Generation Summary including the trips generated by the Existing facility, the Proposed Project, the Approved Project trip generation and the difference in Proposed versus Approved Project trip generation.

Project Phase II

The Project Phase II is estimated to generate a total of approximately 818 daily trips, with 65 trips (46 inbound, 19 outbound) in the AM peak hour and 82 trips (33 inbound, 49 outbound) in the PM peak hour on a "typical" weekday.

Project Phase III

The Project Phase III is estimated to generate a total of approximately 4,110 daily trips, with 333 trips (253 inbound, 80 outbound) in the AM peak hour and 352 trips (101 inbound, 251 outbound) in the PM peak hour on a "typical" weekday.

Project Phase IV

The Project Phase IV is estimated to generate a total of approximately 3,895 daily trips, with 317 trips (242 inbound, 75 outbound) in the AM peak hour and 335 trips (95 inbound, 240 outbound) in the PM peak hour on a "typical" weekday.

Entire Project

The Entire Project is estimated to generate a total of approximately 8,823 daily trips, with 715 trips (541 inbound, 174 outbound) in the AM peak hour and 769 trips (229 inbound, 540 outbound) in the PM peak hour on a "typical" weekday. It should be noted that the trip generation methodology and forecasts were approved by City of Temecula staff prior to proceeding with further analysis.

The ***Approved Master Plan*** included a total trip generation of 12,110 daily trips, with 911 trips (674 inbound, 237 outbound) in the AM peak hour and 1,211 trips (411 inbound, 800 outbound) in the PM peak hour on a "typical" weekday. The ***Proposed Project*** including the ***Existing Hospital*** at the site is calculated to generate a total of 11,379 daily trips, with 910 trips (672 inbound, 238 outbound) in the AM peak hour and 973 trips (300 inbound, 673 outbound) in the PM peak hour on a "typical" weekday.

The Proposed Project is therefore calculated to generate 731 ADT fewer ADT with 2 fewer AM peak hour trips and 238 fewer PM peak hour trips than the Approved Master Plan.

TABLE 2-1
PROJECT TRIP GENERATION

Land Use	Completion Year	Size	Daily Trip Ends (ADTs)		AM Peak Hour					PM Peak Hour				
			Rate	Volume	Rate	In:Out Split	Volume			Rate	In:Out Split	Volume		
							In	Out	Total			In	Out	Total
Phase I (Existing)														
Hospital Tower 1 [a]		237,305 SF	10.77 /KSF	2,556	0.82 /KSF	67:33	131	64	195	0.86 /KSF	35:65	71	133	204
Storage [b]		5,180 SF	-	-	-	-	-	-	-	-	-	-	-	-
				2,556			*131*	*64*	*195*			*71*	*133*	*204*
Proposed Project														
Phase II														
Behavioral Health [c]	2026	144 Beds	5.68 /Bed	818	8%	70:30	46	19	65	10%	40:60	33	49	82
Subtotal Phase II		*144 SF*		*818*			*46*	*19*	*65*			*33*	*49*	*82*
Phase III														
ED Expansion [a]	2032	20,000 SF	10.77 /KSF	215	0.82 /KSF	67:33	11	5	16	0.86 /KSF	35:65	6	11	17
Hospital Tower 2 [a]	2032	125,000 SF	10.77 /KSF	1,346	0.82 /KSF	67:33	69	34	103	0.86 /KSF	35:65	38	70	108
Medical Office [d]	2032	80,000 SF	31.86 /KSF	2,549	2.68 /KSF	81:19	173	41	214	2.84 /KSF	25:75	57	170	227
Central Utility Plant [b]	2032	14,000 SF	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal Phase III				*4,110*			*253*	*80*	*333*			*101*	*251*	*352*
Phase IV														
Hospital Tower 3 [a]	2037	125,000 SF	10.77 /KSF	1,346	0.82 /KSF	67:33	69	34	103	0.86 /KSF	35:65	38	70	108
Medical Office [d]	2037	80,000 SF	31.86 /KSF	2,549	2.68 /KSF	81:19	173	41	214	2.84 /KSF	25:75	57	170	227
Subtotal Phase IV				*3,895*			*242*	*75*	*317*			*95*	*240*	*335*
Total Proposed Project				**8,823**			**541**	**174**	**715**			**229**	**540**	**769**

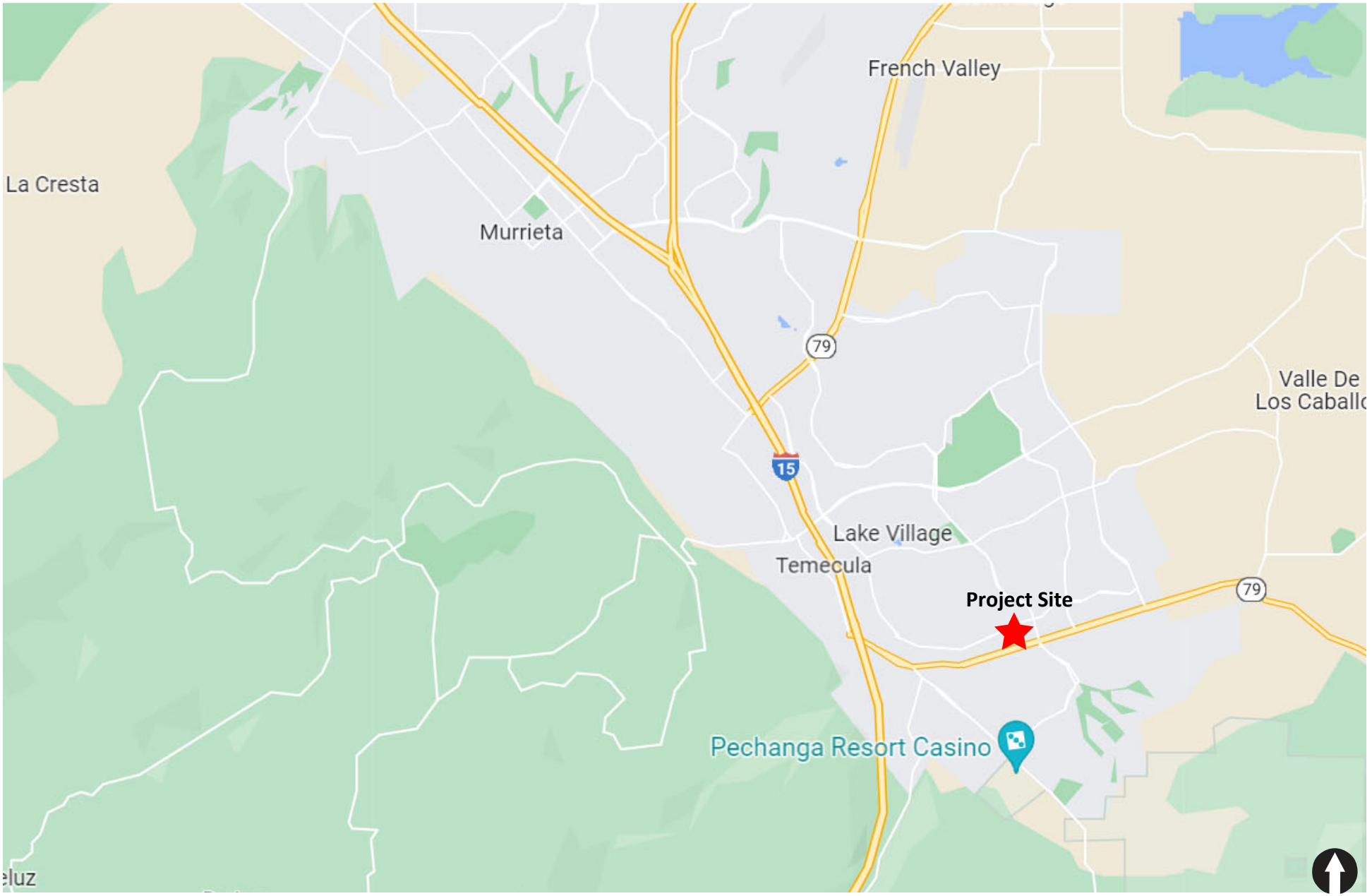
Source: Trip generation rates were obtained from the 11th Edition of the Institute of Transportation Engineers (ITE) *Trip Generation* Manual.

Footnotes:

a. Trip rates for Hospital (Land Use 610) were used.
b. The Storage building and the Central Utility Plant do not generate additional trips and hence no trip rate is applied.
c. Trip rates for Behavioral Hospitals are not available. Therefore, rates developed from actual counts at 5 Behavioral hospitals is used.
d. Rates for Medical-Dental Office Building (Land Use 720) were used.

TABLE 2-2
PROJECT TRIP GENERATION SUMMARY

Description	Daily Trips	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Proposed Project	8,823	541	174	715	229	540	769
Hospital Master Plan (Existing + Proposed)	11,379	672	238	910	300	673	973
Approved Master Plan	12,110	674	237	911	411	800	1211
Difference (Approved - Proposed Master Plan)	731	2	0	2	111	127	238



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Figure 2-1

Vicinity Map

TEMECULA VALLEY HOSPITAL MASTER PLAN



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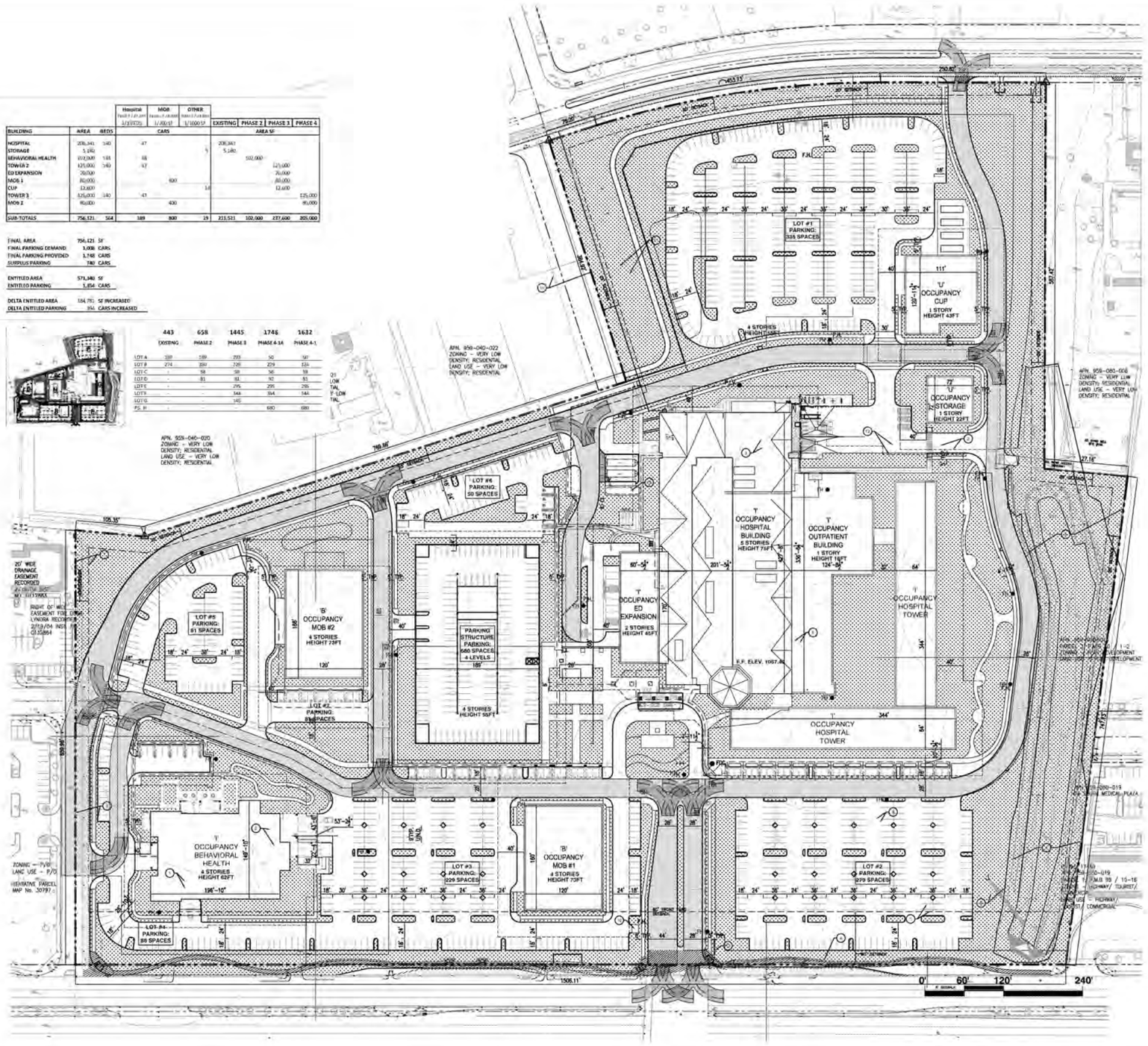
Figure 2-2

Existing Site Aerial Map (Phase 1)

			Hospital (with 1.4/1,000 SF) 3/1000SF	MOB (with 1.4/1,000 SF) 3/1000SF	OTHER (with 0.5/1,000 SF) 3/1000SF				
BUILDING	AREA	BEDS	CARS			AREA SF			
						EXISTING	PHASE 2	PHASE 3	PHASE 4
HOSPITAL	208,341	140	47			208,341			
STORAGE	5,140				5	5,140			
BEHAVIORAL HEALTH	102,000	144	68				102,000		
TOWER 2	125,000	140	47					125,000	
ED EXPANSION	20,000							20,000	
MOB 1	80,000			800				80,000	
CUP	12,600				14			12,600	
TOWER 3	125,000	140	47						125,000
MOB 2	80,000			400					80,000
SUB-TOTALS	756,121	564	189	800	19	213,531	102,000	237,600	205,000

FINAL AREA	756,121 SF
FINAL PARKING DEMAND	1,008 CARS
FINAL PARKING PROVIDED	1,748 CARS
SURPLUS PARKING	740 CARS
ENTITLED AREA	571,340 SF
ENTITLED PARKING	1,854 CARS
DELTA ENTITLED AREA	184,781 SF INCREASED
DELTA ENTITLED PARKING	894 CARS INCREASED

	443	658	1445	1748	1632
	EXISTING	PHASE 2	PHASE 3	PHASE 4-1A	PHASE 4-1
LOT A	289	289	293	50	50
LOT B	274	274	295	229	114
LOT C	-	58	58	58	58
LOT D	-	81	81	92	81
LOT E	-	-	295	295	295
LOT F	-	-	144	354	144
LOT G	-	-	145	-	-
PS. H	-	-	-	680	680



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Figure 2-3

Project Site Master Plan

3.0 REPORT APPROACH

This section presents the Vehicle Miles Travelled (VMT) screening criteria, analysis methodology, significance thresholds and VMT analyses. It should be noted that the approach and methodology outlined in this section is consistent with the *City of Temecula Public Works and Community Development - Traffic Impact Analysis Guidelines (dated September 2020),* which provides additional detail on the language and analysis procedures described here.

The following sections summarize, present City of Temecula's VMT screening criteria, analysis methodology, thresholds and VMT analysis.

3.1 History of Senate Bill 743 (SB 743)

On September 27, 2013, Governor Jerry Brown signed Senate Bill 743 (SB 743). SB 743 created a process to change the way analysis of transportation impacts under the California Environmental Quality Act (CEQA) is conducted. The Governor's Office of Planning and Research (OPR) was tasked to amend the CEQA Guidelines to provide an alternative to the traditional metric of automobile delay which would promote three statutory goals: 1) the reduction of greenhouse gas (GHG) emissions; 2) the development of multimodal transportation networks; and 3) a diversity of land uses. OPR concluded that the use of Vehicle Miles Traveled (VMT), with thresholds linked to GHG reduction targets, would adequately analyze a project's transportation impacts while supporting all three statutory goals.

OPR released a preliminary evaluation of alternative methods for transportation analysis in December 2013, and by August 2014, released a preliminary discussion draft of potential updates to the CEQA Guidelines, which specified VMT as the selected metric for analysis. In 2016, OPR released a draft of the proposed revisions to the CEQA Guidelines. At the same time, OPR released a new *Technical Advisory for Evaluating Transportation Impacts In CEQA*, which provides technical recommendations regarding the implementation of VMT analysis state-wide in a document external to the CEQA statute.

After extensive stakeholder outreach, OPR transmitted the final proposed revisions to the CEQA Guidelines and the current draft of the *Technical Advisory* to the California Natural Resources Agency (the body responsible for certifying, adopting, and amending the CEQA Guidelines) in November 2017. Beginning in January 2018, the California Natural Resources Agency initiated the formal rulemaking process to adopt the proposed revisions, including the new Section 15064.3 which specifies VMT as the metric for transportation analysis. On December 28, 2018, the California Office of Administrative Law filed the revised CEQA Guidelines with the Secretary of the State on behalf of the Natural Resources Agency, thereby formally implementing vehicle miles traveled as the metric for transportation analysis under CEQA. Pursuant to the adopted Section 15064.3, a lead agency may elect to implement the new criteria for analyzing transportation impacts immediately. Beginning on July 1, 2020, the criteria must be applied state-wide.

3.2 Project Screening Criteria

Under the VMT methodology, screening is used to determine if a project will be required to conduct a detailed VMT analysis. The following section discusses the various screening methodologies outlined in the *City of Temecula Public Works and Community Development - Traffic Impact Analysis Guidelines (dated September 2020)* and whether the Project will screen-out, either in its entirety or partially, based on individual land uses.

3.2.1 *Small Residential and Employment Projects*

The *City of Temecula Public Works and Community Development - Traffic Impact Analysis Guidelines (dated September 2020)* states:

> *"Projects generating less than 110 daily vehicle trips (trips are based on the number of vehicle trips after any alternative modes/location-based adjustments are applied) may be presumed to have a less than significant impact absent substantial evidence to the contrary."*

As shown in *Table 2-2*, the proposed Project will generate 8,823 daily trips.

Based on the above, the proposed Project will not screen-out since it generates more than 110 daily vehicle trips.

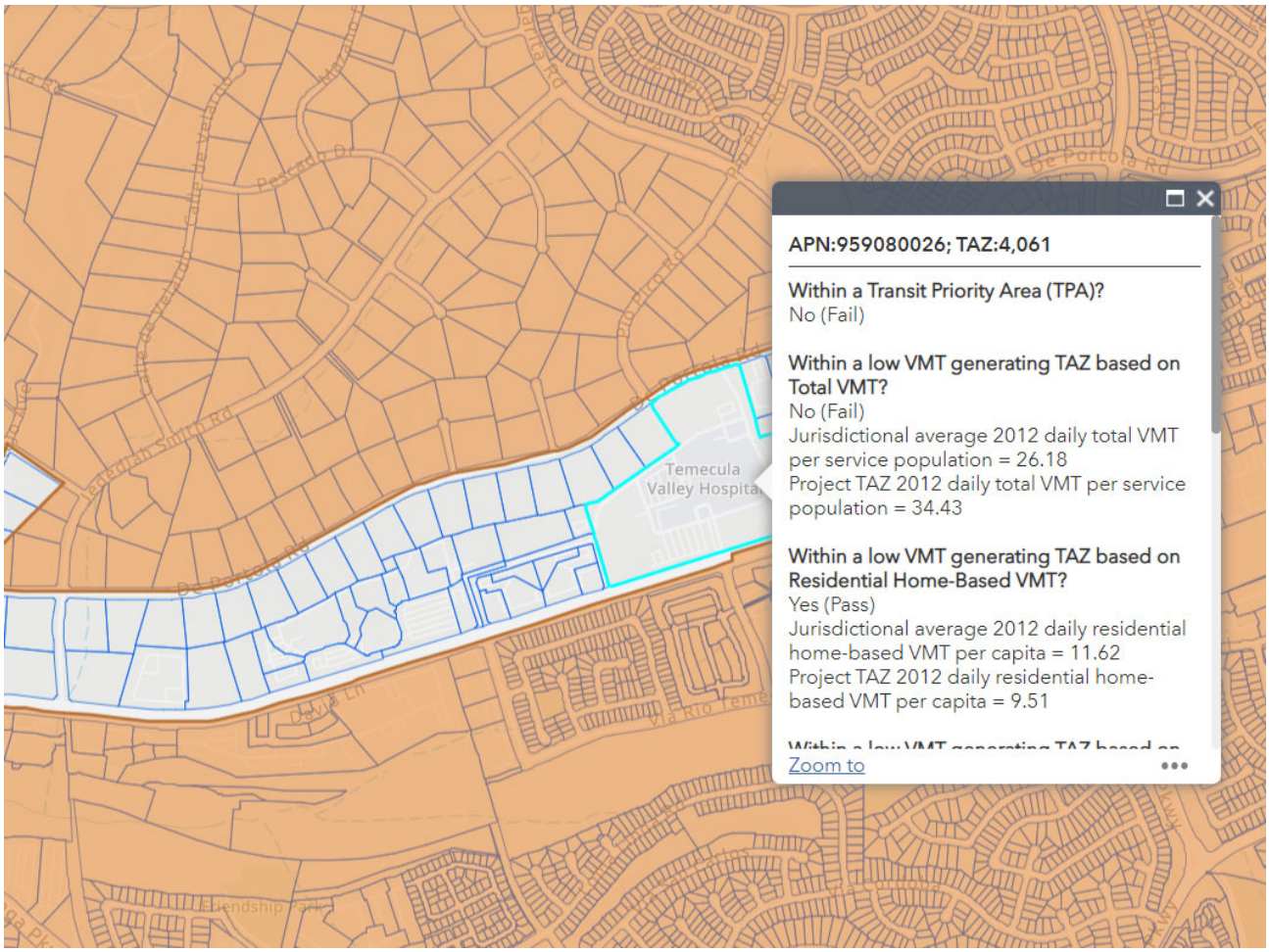
3.2.2 *Projects Located Near a Major Transit Stop/High Quality Transit Corridor*

The *City of Temecula Public Works and Community Development - Traffic Impact Analysis Guidelines (dated September 2020)* states:

> *"Project located within a half mile of an existing major transit stop or an existing stop along a high-quality transit corridor may be presumed to have a less significant impact absent substantial evidence to the contrary. This presumption may not be appropriate if the project:*
>
> - *Has a Floor Area Ratio of less than 0.75.*
> - *Include more parking for use by residents, customers, or employees of the project than required by the City.*
> - *Replaces affordable residential units with a smaller number of moderate- or high-income residential units."*

Based on the above, the proposed Project will not screen-out since it is not located near a Major Transit Stop/High Quality Transit Corridor as presented in the screenshot from the Western Riverside Council (WRCOG) VMT Screening Tool Website[1].

[1] https://apps.fehrandpeers.com/WRCOGVMT/



WRCOG VMT Screening Result Screenshot

3.2.3 *Project Located in a VMT Efficient Area*

The *City of Temecula Public Works and Community Development - Traffic Impact Analysis Guidelines (dated September 2020)* states:

> *"A VMT efficient area is any area with an average VMT per service population 15% below the baseline average for the WRCOG region. Projects within a VMT efficient area may be presumed to have a less than significant impact absent substantial evidence to the contrary."*

The *City of Temecula Public Works and Community Development - Traffic Impact Analysis Guidelines (dated September 2020)* provides a screening map which shows that the proposed Project is not within a VMT efficient area as presented in ***Figure 3-1***.

Based on the above, the proposed Project will not screen-out since it is not within a VMT efficient area.

3.2.4 *Locally Serving Retail Projects*

The *City of Temecula Public Works and Community Development - Traffic Impact Analysis Guidelines (dated September 2020)* states:

> *"Local serving retail projects less than 50,000 square feet may be presumed to have a less than significant impact absent substantial evidence to the contrary. Local serving retail generally improves the convenience of shopping close to home and has the effect of reducing vehicle travel."*

Based on the above, the proposed Project will not screen-out since it is not a locally serving retail project.

3.2.5 *Locally Serving Public Facilities*

The *City of Temecula Public Works and Community Development - Traffic Impact Analysis Guidelines (dated September 2020)* states:

> *"Public facilities that serve the surrounding community or public facilities that are passive use may be presumed to have a less than significant impact absent substantial evidence to the contrary."*

Based on the above, the proposed Project will not screen-out since it is not a locally serving public facility.

3.2.6 *Redevelopment Projects with Greater VMT Efficiency*

The *City of Temecula Public Works and Community Development - Traffic Impact Analysis Guidelines (dated September 2020)* states:

> *"A redevelopment project may be presumed to have a less than significant impact if the proposed project's total project VMT is less than the existing land use's total VMT."*

Based on the above, the proposed Project will not screen-out since it is not a redevelopment project.

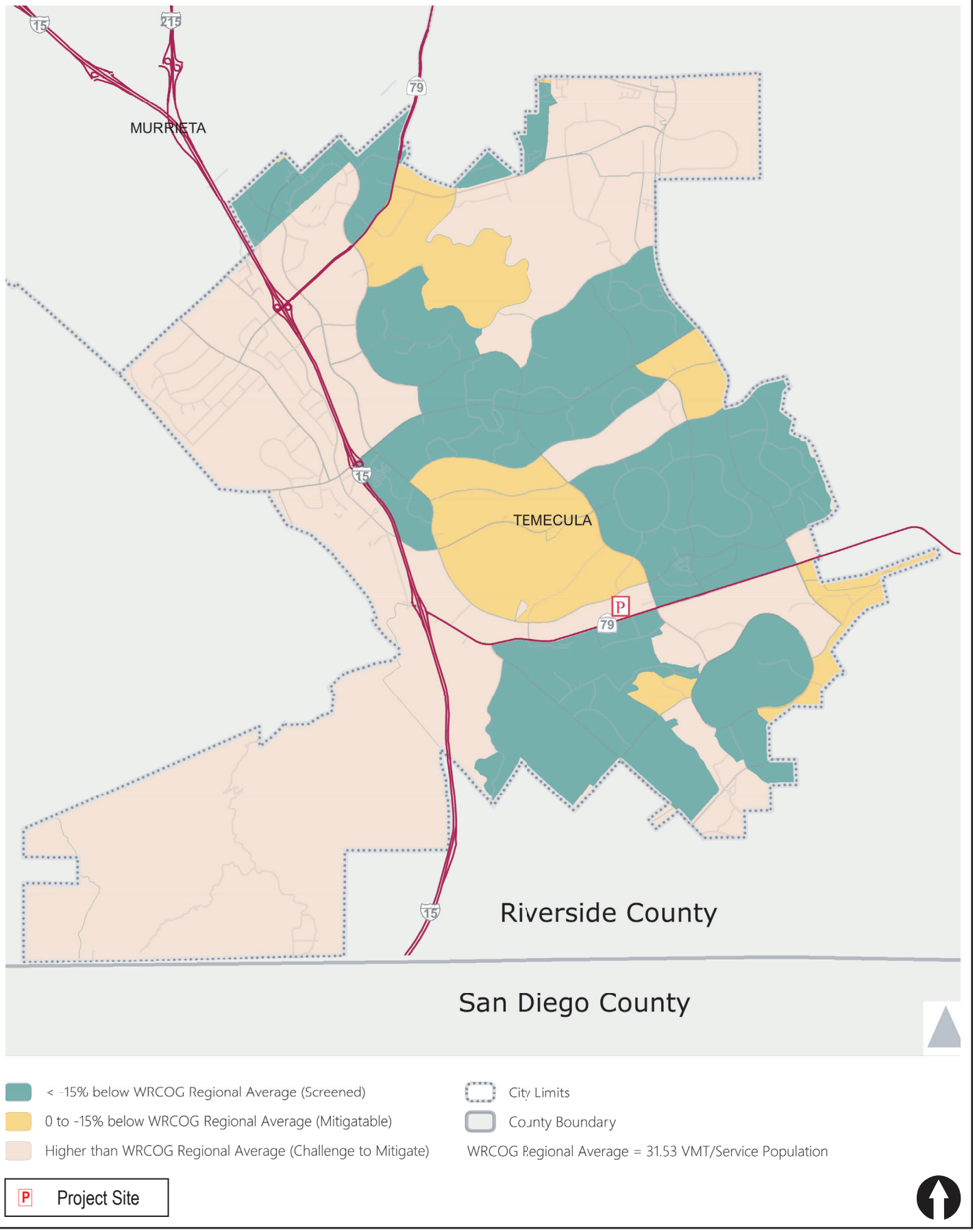
3.2.7 *Affordable Housing*

The *City of Temecula Public Works and Community Development - Traffic Impact Analysis Guidelines (dated September 2020)* states:

> *"An affordable housing project may be presumed to have a less than significant impact absent substantial evidence to the contrary."*

Based on the above, the proposed Project will not screen-out since it is not an affordable housing project.

Based on all the above screening criteria, the proposed Project will not screen-out, thus requiring a full VMT analysis as presented in this Technical Memorandum.



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Figure 3-1

VMT Efficient Area Map

TEMECULA VALLEY HOSPITAL MASTER PLAN

4.0 VMT METHODOLOGY & IMPACT THRESHOLDS

4.1 VMT Analysis Methodology

As required by the *City of Temecula Public Works and Community Development - Traffic Impact Analysis Guidelines (dated September 2020)*, this Project is required to complete a full VMT analysis and forecasting using the Riverside County Model (RIVCOM) to determine if it will have a significant VMT impact. This VMT analysis includes the following scenarios:

- Baseline Conditions
- Baseline Plus Project Conditions

It should be noted that the *City of Temecula Public Works and Community Development - Traffic Impact Analysis Guidelines (dated September 2020)* states that the cumulative no project shall reflect the adopted Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS); as such, if a project is consistent with the regional RTP/SCS, then the cumulative impacts shall be considered less than significant. Since the proposed Project is consistent with the RTP/SCS, the cumulative impacts are considered to be less than significant, and no cumulative analysis has been conducted. Further, it should be noted that this Project is consistent with the general plan land use designation but not consistent with existing zoning.

According to the *City of Temecula Public Works and Community Development - Traffic Impact Analysis Guidelines (dated September 2020),* vehicle miles traveled refers to the distance a vehicle travels regardless of how many passengers are in the car. Daily VMT for a certain roadway segment is equal to the average daily traffic (ADT) that stretch of roadway multiplied by the length of that roadway segment.

Based on the above, a full VMT analysis utilizing RIVCOM has been used to determine the VMT for the Project and for the WRCOG baseline average and will provide the following:

- Total VMT per Service Population
  - VMT per Service Population is established by dividing the total VMT with at least one trip end in the City of Temecula by the population plus employment of the City. The total VMT includes all internal VMT, internal to external, and external to internal VMT.

    The total VMT (origin-destination method) within the City will be calculated directly from model outputs by multiplying the origin-destination (O-D) trip matrix by the final assignment skims (O-D Method VMT). The total VMT value will be appended to include VMT from all trips that enter or exit Riverside County.

4.2 VMT Impact Thresholds

As previously discussed, a project that does not meet the screening criteria will require the preparation of detailed transportation analysis. The project VMT will be evaluated in order to determine if the project is expected to cause a significant transportation impact. The VMT significance criteria as stated in the *City of Temecula Public Works and Community Development - Traffic Impact Analysis Guidelines (dated September 2020)* are detailed below:

> *"Projects that do not meet the above screening criteria must include a detailed evaluation of the VMT produced by the project. Any project with a VMT/Service Population 15% below the WRCOG baseline average VMT/Service Population can be presumed to have a less than significant impact."*

Please note that the cumulative no project condition shall reflect the adopted Regional Transportation Plan/Sustainable Communities Strategy; as such, if a project is consistent with the regional RTP/SCS, then the cumulative impacts shall be considered less than significant.

5.0 PROJECT VMT ANALYSIS

5.1 VMT Analysis

Summarized below are the average VMT per Service Population values utilizing RIVCOM for the City of Temecula and for the proposed Project. It should be noted that the Project is located in Traffic Analysis Zone (TAZ) 2250 and the Project development totals were converted into Socio-Economic Data (SED) and inputted into the RIVCOM. ***Figure 6-1*** presents the TAZ Map from the RIVCOM.

5.1.1 Project VMT Impacts

As shown below, the proposed Project Baseline Average VMT per Service Population is ***30.66%*** higher than the WRCOG Baseline average VMT per Service Population threshold. Based on the significance thresholds and criteria outlined in this report, the proposed Project will exceed the WRCOG baseline VMT per Service Population threshold of 29.42 and will have a significant Project impact under Baseline conditions.

Description	Project	WRCOG	Threshold	Compared to Threshold
Total VMT	25,950	85,167,796.05	--	--
Service Population	675	2,460,291	--	--
VMT/SP	38.44	34.62	29.42	**30.66% Higher**



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Figure 5-1

Traffic Analysis Zones (TAZ) Map

Temecula Valley Hospital Master Plan

6.0 VMT MITIGATION MEASURES

If a significant VMT impact is identified, measures to reduce the Project's VMT impact should be identified to reduce the VMT levels to a level at or below the City's thresholds. To mitigate VMT impacts, the project applicant must reduce VMT, which can be done by either reducing the number of automobile trips generated by the project or by reducing the distance that people drive. The following strategies are available to achieve this:

1. Modify the project's build environment characteristics to reduce VMT generated by the project.
2. Implement TDM measures to reduce VMT generated by the project.

Strategies that reduce single occupant automobile trips or reduce travel distance are called TDM strategies. There are several resources for determining the reduction in VMT due to TDM measures such as the CAPCOA Quantifying Greenhouse Gas Mitigation Measures.

As referenced in the *OPR Technical Advisory*, the California Air Pollution Control Officers Association's *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity, Designed for Local Government, Communities, and Project Developers* Report, Chapters 3 - Transportation, December 2021, (CAPCOA Report) quantifies the reduction in vehicle miles traveled (VMT) associated with a particular mitigation measure. The CAPCOA VMT reduction strategies include built environment changes and transportation demand management (TDM) actions.

The Transportation Demand Management (TDM) strategies are sub-categorized into the following:

1) Land Use
2) Trip Reduction Program
3) Parking or Road Pricing/Management
4) Neighborhood Design
5) Transit
6) Clean Vehicles and Fuels

It may be noted that there are rules and combined maximums for calculating the VMT reduction when applying multiple mitigation measures. To safeguard the accuracy and reliability of the methods while maintaining their case of use, the following rules should be followed when considering reductions achieved by transportation measures.

6.1 Combining Measures Across Scales

According to the CAPCOA, there are sixteen (16) quantified measures at the Project/Site scale that can be combined with each other and seventeen (17) quantified measures at the Plan/Community scale

that can be combined with each other. The GHG reductions of transportation measures from different scales of application should never be combined.

6.1.1 *Combining Measures Within a Subsector*

Effectiveness levels for multiple measures within a subsector may be multiplied to determine a combined effectiveness level. The CAPCOA recommends that measures reductions within a subsector be multiplied. This will take the following form:

$$Reduction_{subsector} = 1 - [(1 - A) * (1 - B) * (1 - C)]$$

Where A, B, and C are the individual measures reduction percentages for the measures to be combined in each subsector. In addition, each subsector has a maximum allowable reduction.

6.1.2 *Combining Measures Across Subsectors*

The CAPCOA report adopts 70 percent as a maximum for the combined VMT impact from the following four subsectors: Land Use, Neighborhood Design, Parking or Road Pricing/Management, and Transit:

$$Reduction_{multi-subsector} = 1\text{-}\ [(1 - Land) * (1 - Design) * (1 - Parking) * (1 - Transit) \leq 70\%$$

It may be noted that this multi-subsector maximum purposefully excludes the Trip Reduction Program subsector.

Table 6-1 presents the CAPCOA TDM strategies for informational purposes. It should be noted that not all TDM strategies will be applicable to the Project. The first column indicates the CAPCOA Report section that discusses the methodology for quantifying the VMT reduction associated with the corresponding measure. A measure's maximum effectiveness in VMT reduction is indicated in the last column. One or a combination of these mitigation measures could be utilized to partially offset the impact.

6.1.3 *Recommended Mitigation Measures*

The recommended mitigation measures for the Project consist of T-5 (Implement Commute Trip Reduction Program (Voluntary)), T-9 (Implement Subsidized or Discounted Transit Program, and T-10 (Provide End-of-Trip Bicycle Facilities) as detailed below.

1) T-5: Implement Commute Trip Reduction Program (Voluntary)

A voluntary Commute Trip Reduction Program will discourage single-occupancy vehicle trips and encourage alternative modes of transportation such as carpooling, taking transit, walking, and biking, thereby reducing VMT and GHG emissions. Voluntary implementation elements are described in this measure. Utilizing the CAPCOA T-5 formula as below:

$$A = B * C$$

Where A is the percent reduction in VMT emissions from the project/site employee commute VMT; B is the percent of employees eligible for the program; and C is the percent reduction in commute VMT from eligible employees, with the value of "-4".

Since 100% of employees are eligible for the program, the Project can get a VMT reduction of up to ***4.00%.***

2) T-9: Implement Subsidized or Discount Transit Program

The Subsidized or Discount Transit Program will provide subsidized or discounted, or free transit passes for employees. Reducing the out-of-pocket cost of choosing transit improves the competitiveness of transit against driving, increasing the total number of transit trips and decreasing vehicle trips. This decrease in vehicle trips results in reduced VMT and thus a reduction in GHG emissions.

Given that 100% of employees are eligible for the subsidy, the VMT reduction depends on the percentage of subsidy from the employer:

Percentage of Subsidy	VMT Reduction
50%	- 0.12%
80%	- 0.19%
100%	- 0.24%

Utilizing the CAPCOA T-9 worksheet, the Project can get a VMT reduction of up to ***0.24%*** in the best-case scenario of the employer subsidizing 100% transit fare.

3) T-10: Provide End-of-Trip Bicycle Facilities

Providing End-of-Trip Bicycle Facilities will install and maintain end-of-trip facilities for employee use. End-of-trip facilities include bike parking, bike lockers, showers, and personal lockers. The provision and maintenance of secure bike parking and related facilities encourage commuting by bicycle, thereby reducing VMT and GHG emissions. Directly utilizing the parameters in the CAPCOA T-10 worksheet, the Project can achieve a 0.3% VMT reduction.

Based on the above, after the Project implements the combination mitigation measures of T-5, T-9, and T-10, the VMT reduction under the best-case scenario is:

$$1 - [(1 - 4\%) * (1 - 0.24\%) * (1 - 0.3\%)] = \mathbf{4.52}\%$$

It should be noted that the above mitigations will not completely offset the Project's Baseline VMT impact of 30.66%.

TABLE 6-1
CAPCOA SUMMARY OF MEASURES

NO.	MEASURE NAME	SUBSECTOR	SUBSECTOR MAX	SCALE	MAX VMT REDUCTION (MEASURE)
T-1	Increase Residential Density	Land Use	65%	Project/Site	30.0%
T-2	Increase Job Density	Land Use	65%	Project/Site	30.0%
T-3	Provide Transit-Oriented Development	Land Use	65%	Project/Site	31.0%
T-4	Integrate Affordable and Below Market Housing	Land Use	65%	Project/Site	28.6%
T-5	Implement Commute Trip Reduction Program (Voluntary)	Trip Reduction Programs	45%	Project/Site	4.0%
T-6	Implement Commute Trip Reduction Program (Mandatory Implementation and Monitoring)	Trip Reduction Programs	45%	Project/Site	26.0%
T-7	Implement Commute Trip Reduction Marketing	Trip Reduction Programs	45%	Project/Site	4.0%
T-8	Provide Ridesharing Program	Trip Reduction Programs	45%	Project/Site	8.0%
T-9	Implement Subsidized or Discounted Transit Program	Trip Reduction Programs	45%	Project/Site	5.5%
T-10	Provide End-of-Trip Bicycle Facilities	Trip Reduction Programs	45%	Project/Site	4.4%
T-11	Provide Employer-Sponsored Vanpool	Trip Reduction Programs	45%	Project/Site	20.4%
T-12	Price Workplace Parking	Trip Reduction Programs	45%	Project/Site	20.0%
T-13	Implement Employee Parking Cash-Out	Trip Reduction Programs	45%	Project/Site	12.0%
T-14	Provide Electric Vehicle Charging Infrastructure	Parking or Road Pricing/Management	35%	Project/Site	No VMT Reduction
T-15	Limit Residential Parking Supply	Parking or Road Pricing/Management	35%	Project/Site	13.7%
T-16	Unbundle Residential Parking Costs from Property Cost	Parking or Road Pricing/Management	35%	Project/Site	15.7%
T-17	Improve Street Connectivity	Land Use	30%	Plan/Community	30.0%
T-18	Provide Pedestrian Network Improvement	Neighborhood Design	10%	Plan/Community	6.4%
T-19-A	Construct or Improve Bike Facility	Neighborhood Design	10%	Plan/Community	0.8%
T-19-B	Construct or Improve Bike Boulevard	Neighborhood Design	10%	Plan/Community	0.2%
T-20	Expand Bikeway Network	Neighborhood Design	10%	Plan/Community	0.5%
T-21-A	Implement Conventional Carshare Program	Neighborhood Design	10%	Plan/Community	0.18%
T-21-B	Implement Electric Carshare Program	Neighborhood Design	10%	Plan/Community	0.18%
T-22-A	Implement Pedal (Non-Electric) Bikeshare Program	Neighborhood Design	10%	Plan/Community	0.02%
T-22-B	Implement Electric Bikeshare Program	Neighborhood Design	10%	Plan/Community	0.06%
T-22-C	Implement Scootershare Program	Neighborhood Design	10%	Plan/Community	0.07%
T-23	Provide Community-Based Travel Planning	Trip Reduction Programs	2.3%	Plan/Community	2.3%
T-24	Implement Market Price Public Parking (On-Street)	Parking or Road Pricing/Management	30%	Plan/Community	30.0%
T-25	Extend Transit Network Coverage or Hours	Transit	15%	Plan/Community	4.6%
T-26	Increase Transit Service Frequency	Transit	15%	Plan/Community	11.3%
T-27	Implement Transit-Supportive Roadway Treatments	Transit	15%	Plan/Community	0.6%
T-28	Provide Bus Rapid Transit	Transit	15%	Plan/Community	13.8%
T-29	Reduce Transit Fares	Transit	15%	Plan/Community	1.2%

7.0 CONCLUSIONS

Consistent with the *City of Temecula Public Works and Community Development - Traffic Impact Analysis Guidelines (dated September 2020)* and based on the VMT methodology, criteria, guidelines, thresholds and results outlined in Section 12.7 VMT mitigation Measures, the proposed Project will have a significant unmitigable VMT impact. It may be noted that the mitigation measures listed in this report will help to partially offset the VMT impacts.